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# Animal Keepers' Forum



*Dedicated to Professional Animal Care*

JANUARY 1982



The Keeper/Artist for January is Sam LaMalfa from the Milwaukee County Zoo. The drawing is of Samson, Milwaukee's male Lowland Gorilla, who died on 27 November, 1981. Sam was Samson's keeper and his story about this remarkable great ape can be found on page 4 of this month's FORUM. Thanks, Sam!

# Scoops and Scuttlebutt

## NEW BOARD MEMBERS ASSUME DUTIES

As the new year begins, new board member Kevin Conway starts his term of office, and Pat Sammarco continues. Outgoing board member Bernie Feldman deserves the appreciation of all AAZK members for the fine service he has given us all as a guide in the association's affairs. Bernie will continue as the head of the ANIMAL DATA TRANSFER forms project. We all owe Bernie many thanks for his enthusiasm and efforts in making AAZK the fine professional association it is.

## FILM PROJECT UPDATE

The AAZK Board of Advisors has voted to continue research into the Looking to the Future film project. This project will discuss the future of zoos, feature new or old and exciting exhibits, and discuss the changing role of the keeper. If you are interested in writing one of the scripts, have a suggestion for an exhibit we should film or know a keeper who is doing interesting work, please contact: Karen Starr Wake-land, Rt. 2, Box 770, Midlothian, TX 76065.

## NATIONAL TAKES OVER PIN/CHARM SALES

Sales of the AAZK enamel pins/charms has been turned over to the National Office. All orders should be sent directly to National Headquarters, 635 Gage Blvd., Topeka, KS 66606. Checks should be made payable to AAZK. (See Accessories Page for prices etc.)

## INTERNATIONAL MEMBERS TAKE NOTE!

All new and renewing International Members are reminded to PLEASE send their dues in the form of a money order made out in U.S. CURRENCY ONLY. The bank charges for converting foreign checks or foreign currency money orders is too prohibitive for our budget. Members should be able to obtain a U.S. currency money order at their local bank.

## IMPORTANT NOTICE ON ADDRESS CHANGES

Every month prior to mailing the Forum, our address file which determines the mailing labels is updated with all the most recent information we have received from members. If you have moved and notified your post office of your new address, your AKF should be forwarded to you for up to 90 days. If you have not notified them, it will not be forwarded. If we do not receive your address change in time for that month's mailing and you have not notified your post office of the change, we can no longer send a second copy of that month's AKF to you for free. Because of rising printing costs as well as the 25¢ postage due we must pay on each AKF returned to us by the post office, we must begin charging the regular \$1.00 per copy price for a second AKF. National Headquarters will be most appreciative of your help in keeping addresses current.

## from the President

By now most of you have seen the brochure for a tour of East Africa being offered by Park East Tours, Inc. Although this is not an AAZK sponsored activity, the directors of Park East Tours, Inc. should be thanked for their offer of making an African tour available at an especially low price to zoo keepers. Since this is an activity of the tour agency, please direct inquiries to them rather than national headquarters. AAZK's involvement is limited to verifying membership status for the tour arrangers, so that they may limit the tour to keepers, those who often cannot afford such a trip at the usually high prices.

The October tour dates have been changed so as not to conflict with the national conference. Contact Park East about this. Their address is 1848 Broadway, New York, NY (212) 765-4870.

Patricia Sammarco  
AAZK President



## Coming Events

### SCHOOL FOR PROFESSIONAL MANAGEMENT DEVELOPMENT FOR ZOO AND AQUARIUM PERSONNEL

February 7-11, 1982

Wheeling, West Virginia

The Management School will be held at Wilson Lodge, Oglebay Park. For further information contact: North Carolina State University, Div./ Continuing Education, P.O. Box 5125, Raleigh, NC 27650. Attn: Mr. Kelly Crump or call (919) 737-2261.

### WILDLIFE REHABILITATION SYMPOSIUM

February 18-21, 1982

Glen Ellyn, IL

The Symposium will feature Workshops, Paper Sessions and National Keynote Speakers. For information, write: Willowbrook Wildlife Haven, 525 S. Park Blvd., Glen Ellyn, IL 60137, Attn: Dr. Paul Beaver.

### AAZPA NORTHEASTERN REGIONAL CONFERENCE

March 7-9, 1982

Toronto, Ontario, Canada

### AAZPA SOUTHERN REGIONAL CONFERENCE

March 21-23, 1982

Montgomery, Alabama

### NORTH AMERICAN SYMPOSIUM: CHEMICAL IMMOBILIZATION OF WILDLIFE

April 4-6, 1982

Milwaukee, WI

For symposium program and registration information, write or call: Leon Nielsen, Wisconsin Humane Society, 4151 N. Humboldt Ave., Milwaukee, WI 53212. (414) 961-0310.

ELEPHANT CONFERENCE -- Dickerson Park Zoo, Springfield, MO, will host the third annual conference on captive elephant management. It will be held October 9-10, 1982. More details will be available later.



# Births & Hatchings

## SAN ANTONIO ANNOUNCES RECENT BIRTHS.....C.M. Roger

The San Antonio Zoo is pleased to announce the following births and hatchings. Our Bird Dept. hatched 2 Hartlaub's Duck, a first in our collection. Other hatchings include: 2 Sarus Cranes, 2 Collard Dove, 1 Red-necked Cordon-bleu, 1 Violet-eared Waxbill, 3 Melba Finch, 2 Painted Quail, 1 African Ring-necked Dove, 1 Green Wood Hoopoe and 1 Bare-headed Rockfowl. The Aquarium hatched 2 Checkered Cichlids. In Mammals: 0.1 Common Water-buck, 1.0 Besia Oryx, 0.1 Blackbuck, 1.1 Aoudad, 0.1 Lady Grey's Water-buck, 1.0 Chapman's Zebra, 1.0 Sable Antelope, 4.0 Dama Gazelle, 1.0 Grant's Gazelle and 1.2 Three-banded Armadillo were born. In Reptiles: 3 African Shield-nosed Snakes and 3 Newwied's Pit Vipers were born. Both are firsts in our collection. In addition, 6 African Coral Snakes were hatched.

## JERSEY WILDLIFE PRESERVATION TRUST ADDITIONS.....Karen Starr Wakeland

The Jersey Wildlife Preservation Trust recently reported the following births and hatchings: Mammals - 1 Mayotte Brown Lemur, 4 Goeldi's Monkey, 2 Silvery Marmoset, 2 Jamaican Hutia, 3 Rodriguez Fruit Bat, 1 Mongoose Lemur, 1 Ring-tailed Lemur, 3 Ruffed Lemur and 10 Pygmy Hedgehog Tenrec; Birds - 12 Palawan Peacock Pheasant, 4 Black-necked Swan, 3 Waldrapp Ibis, 4 Laysan Teal, 13 Meller's Duck, 1 Edward's Pheasant, 6 Pink-crested Touraco, 1 Grey Touraco, 7 Rothchild's Mynah, 1 Emperor Goose, 3 Common Shelduck and 1 Snowy Owl; Reptiles - 17 Malayan Python, 34 Round Island Skink, 7 Round Island Gecko and 2 Plumed Basilisk.

## DALLAS ZOO'S OCT/NOV ARRIVALS.....Penny Tadmor

The Dallas Zoo is pleased to announce the following births and hatchings for the months of October and November 1981: Mammals - 3 Spotted Leopards (one was subsequently killed by the mother), 1 East African Oryx, 1 Sable Antelope, 1 Klipspringer, 1 Besia Oryx, 2 Suni Antelope, 2 Kirk's Dik Dik, 1 Llama, 1 Patagonian Cavy, 1 Reticulated Giraffe, 2 Dama Gazelles, 2 Barbary Sheep; Birds - 1 West African Crowned Crane, 2 White-cheeked Touraco, 2 Speckled Pigeons; Reptiles - 9 Pueblan Kingsnakes, 1 Central American Kingsnake and 2 Coahuilan Box Turtles.



## "PIECE OF YOUR ZOO" PROJECT PICKS UP STEAM

We would like to thank all the members who have sent in either a patch, decal or bumper sticker as part of our "Have A Piece of Your Zoo at National Headquarters" project. So far we have received such "pieces" from the following zoos: Pittsburg Zoo, Dickerson Park Zoo, Metro Toronto Zoo, Atlanta Zoo, Oklahoma City Zoo, Jackson Zoological Gardens, Arizona Zoological Society, Reptilien Zoo (Garmisch-Partenkirchen), National Zoological Park, Erie Zoological Society, Gladys Porter Zoo, Sacramento Zoo, Chicago Zoological Society and the El Paso Zoo. If you do not see the name of your institution listed, how about sending us a patch, decal etc. for display in AAZK National Headquarters? We are also working on a large map of the U.S. on which we are pinpointing where local AAZK Chapters exist as well as membership concentrations.

## MILWAUKEE'S SAMSON DIES

By  
Sam LaMalfa  
Milwaukee County Zoo

"Samson, you were Milwaukee's pride, Milwaukee's joy, Milwaukee's Eiffel Tower," wrote The Milwaukee Journal's editorialist.

On 27 November, 1981, at approximately 3:45 p.m., Samson, Milwaukee County Zoo's male Lowland Gorilla, died of an acute heart attack.

When he arrived in Milwaukee on 15 October, 1950, he weighed 12½ pounds (5.66 kg.). He was believed to have been born in 1949. Sambo, another Lowland Gorilla that arrived with him, died of pneumonia in 1959. Donated to the Zoo by the Pabst Brewing Company, they were believed to be the first gorillas to permanently reside in the state of Wisconsin. On 2 October, 1959, Samson was moved from Washington Park to the present zoo. Over the years he became an undisputed star, making Milwaukee "a gorilla town." A few years ago a newspaper reporter conducted a survey on name recognition of well-known individuals in the area. Milwaukee Mayor Maier was the most widely known, while Samson and Green Bay Packer Coach Bart Starr were tied for second, identified by 27 or 30 people. Also, with prominent males in other zoos --such as Albert in San Diego -- already gone, Samson was indeed the dean of zoo gorillas in America. In this respect his death was a loss, not only to our community, but also to the entire U.S. zoo world.

Moreover, his fame spread beyond the boundaries of the United States. In his book The Best of Friends (Harper and Row, 1976) John Aspinall noted that Samson was "the most impressive primate I have ever seen." It is also said when a boy from Thailand came to Milwaukee to visit his grandparents several years ago, his first words were, "Where's Samson?"

Milwaukee shall remember the good times as well as the bad times: In 1975 an attempt was made to introduce him to Terra, the Zoo's female. This, however, did not lead to successful breeding. The period when he had been overweight may have had an effect on his heart condition -- in 1971, he weighed 652 pounds (295.3 kg.). He was then placed on a diet, and most recent data shows his weight as 522 pounds (236.4 kg.).

While having his daily meal in his glass-fronted enclosure on the afternoon of 27 November, Samson began gasping for breath and collapsed on his back. Efforts to revive him included a tracheotomy and pounding on his chest to get his heart started. His body was taken to the Zoo's hospital where the viscera was removed by Dr. Lawrence Clowry, a pathologist with the Milwaukee County General Hospital. The necropsy report reveals that he had had at least five major heart attacks previously. The rest of his body was taken to the Milwaukee Public Museum for future display.

It might be noted at this point that Dr. Steven Jacons, a urologist with the County General Hospital, separated his testicles approximately three hours after his death. According to Mr. Arden Piper, a domestic animal reproductive specialist, Samson's sperm were found to be viable. "I felt my charge was to keep him from becoming a genetic dead end," says Milwaukee County Zoo Director Dr. Gilbert Boese. Samson's sperm has been frozen for a future experiment; an artificial insemination utilizing sperm from a dead gorilla which, to our knowledge, has never been done before.

A temporary exhibit, including photos and informational signs, was set up in Samson's quarters. Prior to his death we had been planning a photographic exhibit on Samson in the Primate House. This will now include the final chapter of his life.



# Bird Calls



## CAPTIVE-RAISING YOUNG BARN OWLS FOR RELEASE IN THE WILD

By  
Bill Hunt  
Abilene Zoological Gardens  
Abilene, TX

An auxiliary task of the Abilene Zoological Gardens is the care and rehabilitation of captured and/or injured animals. The spring of 1981 provided the usual influx of refugees from human interference with the natural parent-raising of young owls. Two Barn Owlets were found in a piece of oil-field equipment after it was moved 100 miles! Another juvenile Barn Owl was captured after it fell out from under a bridge. This is the story of the "orphaned" downy young Barn Owls (*Tyto alba*), their captive-raising and release to the wild with a minimum of human contact and after being trained to hunt live prey.

The major challenges of our rehabilitation project are: 1) to produce a physically healthy animal, and 2) to produce a psychologically wild animal, with appropriate avoidance of humans and the ability to acquire its own food supply.

The Abilene Zoo is well suited to the former task, with resources for providing proper diet and veterinary care. The latter, however, is more difficult, since with zoo animals it is usually desirable to condition them to accept human presence, as well as the nutritious, but often unnatural foods provided by the zoo. It remained for me to devise ways to nurture wildness in captive-raised owls. In this project I was greatly aided by Katherine McKeever's experience at the Owl Research and Rehabilitation Foundation in Vineland, Ontario.

The most critical age for imprinting either on its own species or on some alien form such as humans is the period from three to eight weeks in owls. During this time downy Barn Owls were placed in a 2' x 2' x 2' (0.6, x .06m x .06m) plywood box with one open side. This box was then hung outside of the wire mesh cage housing an adult Barn Owl. The open side faced inward, allowing the young owl unhindered vision of its own kind. A 6" x 6" (15cm x 15cm) hole with a sliding cover permitted food to be placed in the box without presenting a view of the keeper at the same time.

An indication of the effectiveness of this technique came quickly for one young owl. Whereas in our zoo nursery this bird had been greeting the keeper with "chirpy" food calls, after one day in the box it reacted to a glimpse of the same person with the harsh, grating alarm call of this species. It maintained this posture and began to refuse food from the hand except when very hungry.

## Captive-raising Young Barn Owls For Release, continued

Juvenile owls are removed from the nestling box when their flight feathers are complete, and when they begin to move about actively. They are then placed in a 9' x 13' (2.8m x 4m) flight cage: in our case this is a wood and wire stall in an off-exhibit barn. When our supply permits, these birds are fed fresh-killed or frozen mice. An alternate staple food is pulverized chicken necks with vitamin/mineral supplement.

Since mortality among juvenile owls is apparently very high even in the wild, responsible release procedures require providing some prior experience in capturing live prey. In Texas where winter weather is often not severe, autumn releases are considered appropriate. In more northern climates, or in the case of late summer young, holding the birds over until spring may be wiser.

With the first juvenile Barn Owl, I began live-prey training about ten weeks after the bird achieved its full adult plumage. It was strong, active and showed marked avoidance of humans.

The training stall had been lined with rippled fiber-glass paneling to prevent the escape of the live rodent prey. One full-grown mouse per owl was simply released into the stall each evening during the training period. Leaf or straw litter was scattered on the floor to give the mice some cover, and to produce rustling sounds that would attract the owls' attention in the dark. At the beginning, white or bi-colored mice were used to increase their visibility.

After ten days of live-prey training, the owl was caught and its condition checked. Its breast was meaty next to the keel, and it was vigorous and agile. It was concluded that the bird was certainly eating the proffered mice, which was the only source of food available. Training was continued for another ten days, when the bird was checked again and declared ready for release. When it was caught this time, the owl uttered the horrible dry scream that never fails to raise the hairs on my neck! As far as I was able to tell, this was indeed a wild bird that had proven its hunting skills and was ready to make its own way in the outside world.



## Publications Available

Wild Elephants in Captivity by Dr. Jack Adams, Center for the Study of Elephants, P.O. Box 4444, Carson, CA 90749. Includes sections on: first elephant in America, numbers of captive elephants, famous living trainers, the elephant's role in religion, culture and economy, elephant species, the mysterious phenomena of "musth", elephant intelligence, nutrition, reproduction, diseases, care and maintenance. Also included are step-by-step training procedures complete with photographs. Available from above address for \$20.00 plus \$1.50 postage and handling.

Captivity and Behavior edited by Joseph Erwin, Terry Maple and G. Mitchell. Focuses on the influence of captive environment on eleven different species of apes and monkeys. Both zoo and laboratory animals are investigated, with full attention given to handling of abnormal behavior patterns. You will discover new ways to enrich the environment, minimize aggression and depression, induce activity, enhance fertility and decrease mortality and morbidity rates. Available from Van Nostrand Reinhold, 135 West 50th St., New York, NY 10020 for \$28.50.

# Reptile Amphibian Potpourri

## NATIONAL ZOOLOGICAL PARK OPENS RENOVATED REPTILE/AMPHIBIAN EXHIBIT

By  
Ilene Ackerman  
Office of Public Affairs, NZP

Alligator snapping turtles, red-eyed tree frogs, water dragons and 90 other species of reptiles and amphibians took their places once more when the Reptile and Amphibian House reopened on December 18. For nearly two years contractors, keepers, curators, and maintenance staff have worked hard to improve the animals' homes and to renovate the 49-year-old structure which had been a favorite place for zoogoers since 1931.

The exterior of the Reptile and Amphibian House has remained unchanged. With its ornate entrances, sculptured gargoyles and decorative brickwork, the building remains a Washington landmark.

The interior has been completely renovated and modern heating, plumbing and electrical systems have been installed. The crocodiles, lizards, snakes, turtles, frogs and salamanders will return to homes that have been expanded in size, redecorated with living plants and equipped with new lighting. The new environments are healthier for the animals and allow for their display in attractive, natural settings that are more exciting for the public.

Reptile House keepers designed and decorated all the enclosures and each is a work of art. They were helped in their efforts by Warren Cutler, Tom Gray, and Levi Murrell (OGE), Bess Frank, Milton Tierney, and Jim Lillie (North Mammals), and Mary Firestone (OAM). The knight anoles' exhibit conjures up visions of a Caribbean beach scene, complete with shells, sand and a palm tree. Nearby, the tree boas have a new aerial view of the scene atop three pieces of driftwood that hang together from above. The keepers should be proud of their work, and they are. "I like the idea of having a lot of diverse exhibits," said keeper Bob Davis. "There is a great visual impact and that helps keep peoples' attention."

The public space has been attractively redecorated and a one-way visitor flow pattern has been devised. New interior lighting and a series of short partitions break the long hallways into segments, each featuring only a few exhibits with new animal identification labels.

Next year, HERP-LAB, an educational facility located in the building's central hall, will open. Already the fossilized skull of a giant triceratops dinosaur can be viewed in the lab's showcase window. In the facility, families will be able to learn about reptiles and amphibians through activities involving objects and live animals. Herp-lab creator Judith White hopes that "educational activities initiated at Herp-lab will encourage visitors to observe the animals more closely."

To the delight of the Reptile House staff, they too have an area (behind-the-scenes) where they can study the animals more closely. According to curator Dr. Dale Marcellini, "Reptile and amphibian species are the

least understood and the most difficult to breed among the four classes of animals commonly kept in zoos. We're hoping to develop husbandry techniques that will improve the captive propagation of these animals."

Three new indoor/outdoor crocodilian exhibits have been built adjacent to the Reptile House. The new buildings are joined by an observation deck overlooking the pools and banks where the giant reptiles will bask in the sun during warm weather. Through the joint efforts of Zoo horticulturist Ric Hider and the Reptile House keepers, the area around the buildings has been beautifully landscaped with ornamental grasses, bamboos and flowering herbaceous perennials that give the impression of natural vegetation.

(Reprinted from TIGERTALK, National Zoological Park and Smithsonian Institution, December 1981, No. 12.)



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And Then There Were None....

TECOPA PUPFISH DECLARED EXTINCT--  
REMOVED FROM ENDANGERED LIST

The Tecopa pupfish has become the first species to be removed from the endangered list because it is extinct. The Interior Department's U.S. Fish and Wildlife Service made that announcement after no Tecopa pupfish were found in spite of extensive searches by federal, state and university biologists in more than 40 localities near Tecopa, California where the fish could have possibly existed.

The unique desert fish, native to California's Death Valley system, was known to have lived in only two outflow springs of the Amaragosa River system. It is thought to have disappeared because of man-made alteration of its habitat and possibly also as a result of the introduction of competing, non-native fish. One of the 12 kinds of pupfish in the U.S., the 1½" Tecopa could tolerate highly saline waters and temperatures up to 100° F. In 1965, the two hot spring outflows were rechanneled and combined during construction of bathhouses, resulting in a swifter channel which carried even hotter water farther downstream, a situation for which the pupfish was not adapted.

"It is always sad when a species becomes extinct because of human activities," noted Robert A. Jantzen, FWS Director. "But the Tecopa pupfish was possibly extinct when the first recovery efforts were made under the endangered species laws. In this instance, the fact that this fish has become extinct should not be taken to mean that endangered species conservation measures have failed. On the contrary, recovery actions have benefited a great number of endangered species, such as the American alligator, peregrine falcon, whooping crane, and brown pelican."

---Department of the Interior  
News Release by Alan Levitt



## *The Evolutionary Zoological Ladder*

### DIRECTORS OF PARKS AND RECREATION

1. Leap tall buildings with a single bound.
2. Are faster than speeding bullets.
3. Are stronger than bull elephants.
4. Walk on water often.
5. Talk with kings.

### ZOO VETERINARIANS

1. Must take a running start to leap over tall buildings.
2. Are as fast as speeding bullets.
3. Are stronger than a bull water buffalo.
4. Walk on water in emergencies.
5. Talk with princes.

### SENIOR KEEPERS

1. Can leap over short buildings.
2. Can be caught by speeding bullets occasionally.
3. Are stronger than a bull.
4. Wash with water.
5. Talk with themselves.

### FOREMEN

1. Crash into buildings.
2. Are as fast as spent bullets.
3. Shoot the bull.
4. Drink water.
5. Argue with themselves.

### DIRECTORS

1. Cannot recognize buildings.
2. Wound themselves with bullets.
3. Smell like a bull.
4. Perspire water.
5. Argue with themselves and lose the arguments.

### ZOO KEEPERS

1. Lift buildings and walk under them.
2. Catch bullets in their teeth and chew them up.
3. Eat bulls of all species.
4. Can walk under water for miles without coming up for air.
5. Are kings.

---Anonymous

# ELEPHANT SET

## ELEPHANTS:

Beasts of Burden,  
War Machines,  
Performers

By  
Lora LaMarca  
Curator of Education  
The Los Angeles Zoo



The personal relationship between man and elephants has existed long before recorded history. Man has utilized this massive pachyderm as an instrument of war, a means of transportation, a hunter, a draft animal, parade animal, and for display and entertainment. To manipulate an animal of such gigantic size requires special training of the animal and a close and supportive association between the elephant and its trainer.

The varied cultures of India used elephants as beasts of burden and war machines. An abundant supply of elephants existed over much of the Indian subcontinent. Drawings found on pottery uncovered in the Indus Valley indicate that elephants were managed as work animals as early as 3500 B.C.

The Chinese perceived elephants as curiosities to be observed rather than used as draft animals. The ancient Cambodian kingdom of Khmer was one of many Asian cultures to use them for sport as well as war. Tiger hunters mounted on elephants remained stationary as others beat the tigers from the bushes. When the felines approached the motionless elephants, the hunters could maneuver their animals and take perfect aim from a very safe position. Elephant baiting was a popular arena entertainment. Elephants were trained to brutally fight against lions, prisoners, and other elephants for the enjoyment of viewers.

During the same time period, elephants were also used in Africa, but more for ritual and ornamental purposes by the native African kingdoms rather than as war machines. The Egyptians, who probably received elephants from their Nubian and Lybian provinces, were very respectful of the massive beasts and used them for display rather than fighting. Ancient Egyptians were known as excellent animal handlers, being able to manage most animals they encountered from cheetahs to gazelles.

Elephants figured prominently in the ebb and flow of power in the Middle East and Mediterranean. Alexander faced the elephants of the Indian King Porus when he crossed the Indus River. It has been recorded that Alexander's troops drew back upon sighting the hundreds of elephants which King Porus used as the leading strength of his army. However, once Alexander's horsemen learned to condition their horses to have no fear of the animals, it was not difficult for them to pelt the Indian elephants with arrows from afar and to finally get in close enough to attack the mahouts (elephant trainers). Once the mahouts were extinguished, the elephants became uncontrollable and trampled as many Indians as Greeks. Alexander took possession of the animals that remained and fought with them in battles as he continued to ravish the Persian empire.

With the rise of Roman power, Rome came in direct conflict with Carthage, a struggle which lasted decades. Here again elephants played a spectacular, but not decisive, role. Hannibal, the great Carthaginian general, gathered together an army which included thousands of troops and 37 ele-

phants. He accomplished the incredible feat of crossing the Alps to invade Northern Italy, and for nearly 10 years fought the assembled Roman armies. This culminated in the battle of Cannae where the Romans were devastated. The road to Rome lay open.

Although Hannibal was the victor, his army was so drained he could not capitalize on it to his advantage, and this was the beginning of the end for Hannibal and Carthage. History does not record what happened to Hannibal's elephants that were left in Italy after the fall of Carthage.

This heralded the days of the Roman Empire and the time of the Caesars--the Roman world was the known world. The Roman leaders believed that if they could keep the people fed and entertained they would retain control and support of the populace. Thus began the staggering, blood-thirsty spectacles in the coliseum...blithely considered entertainment. Animals were in great demand because they were slaughtered by the thousands in the arenas. Although elephants were part of this massive destruction, they gained strong public appeal and sympathy, and luckily, were spared. Instead, the Caesars tended to use the elephants in spectacular parades, public displays, and as a show of strength against the enemies of the Roman Empire.

The Roman Empire fell, leading into the Dark Ages, and animal shows became virtually obsolete. There were few diversions during the Renaissance or Middle Ages, but one was the traveling minstrel show. These usually consisted of juggling acts, human freaks of nature on display, and an occasional elephant. Throughout these times the myths and legends about elephants flourished. From this very humble beginning rose the circus as we know it today. On the other hand, during these same times a sign of royalty was to keep a collection of animals on display, and from that idea rose today's zoos.

Elephants were utilized in World Wars I and II and, even more recently, the Viet Cong had elephants haul artillery and ammunition down the Ho Chi Minh trail. As beasts of burden, elephants are still an integral part of the logging industry in Southeast Asia. They can penetrate the teak forests where equipment cannot, and the big-tusked males can easily move logs.

The first elephant to arrive in America was shown in New York as a curiosity in 1796. She was walked from there to Philadelphia, beginning a tour of major cities for this elephant. In the 1800's, early circuses began putting the animals to work to help raise the big tents and to perform simple tricks; circus goers became enthralled with elephants. "Well, I've seen the elephant" became a common colloquial expression which meant that once a person saw an elephant, they had seen everything. From this point on, elephants were firmly entrenched as one of the public's favorite animals.

The Los Angeles Zoo has always exhibited elephants, and, along with that, the animal keepers have worked the animals to respond to simple commands such as "stand", "leg up", and "lie down". When managing an animal the size of an elephant in captivity, the keeper must always be in control.

In 1978, Scott Riddle became the head elephant keeper at the Zoo. Prior to that, he spent time as first assistant to Bill "Buckles" Woodcock, one

of the all-time great elephant trainers, who taught Riddle most of what he knows today about training elephants. Riddle immediately began to retrain prior learned behaviors to the Zoo's "old time" elephants and began fresh with the Zoo's newer animals.

The first step in training an elephant is to teach it to "lead" or "tail-up". The elephants form a line and, with their trunks, hold onto the tail of the elephant in front. The lead elephant keeps its trunk up, thereby none of the elephants can haphazardly swing their trunks. Next, an elephant will generally be trained to "lie down" and "sit up". Depending on their personalities, elephants can learn any number of behaviors such as a front or hind leg walk, a one foot stand, or working in harness.

In training, verbal commands are relied on most heavily, and there is no limit to the number of commands an elephant can learn. According to Riddle, the best commands are strong words of two syllables or less. Thus the animal can quickly learn the association between readily identifiable sounds and the behavior requested. "Steady", "foot", and "tail" are commonly used commands.

During the summer of 1980, the Zoo began to work the elephants in regularly scheduled programs for the public. The programs enabled zoo visitors to observe and enjoy elephants in a broader dimension and provided the elephants with regular exercise and a good psychological diversion, which is important for such an intelligent animal.

Many centuries have passed, yet the elephant still remains an animal capable of capturing man's fascination and respect. It is unfortunate that all the world's elephants are now either threatened or endangered. Elephants require large tracts of land to roam in search for food. Their natural habitat diminishes daily as man encroaches upon the land, causing the elephant to destroy its own environment. This, combined with poaching for ivory, makes it unlikely that within the next century the elephant will have sufficient space or food to survive in the wild.

*This article has been reprinted from ZOOVIEW, the quarterly magazine of the Greater Los Angeles Zoological Society, Vol. XV, No. 3, Summer 1981, with the permission of the author and GLAZA.*



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## Keeper's Alert

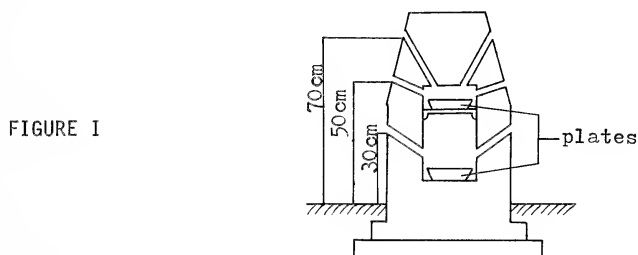
Life on Earth, a 13-part TV series that traces the evolutionary history of animal life, premieres on your local PBS station in January. The film is most significant for its comprehensive and graphic portrayal of the development of animal groups in context with other living things and the earth itself. Characterized by a remarkable degree of photographic intimacy, it brings many firsts to the TV screen--from the underwater view of a coelacanth to the hatching of an echidna. We suggest you call your local PBS station to find out when it will be shown in your area.

## ZOO NEWS FROM JAPAN

### *Unique Trials of the Apes at the Tama Zoological Park, Tokyo*

By  
Yoshi. Yonetani  
ZooDEL/Zoo Design & Education Lab  
Japan

The first trial started at the end of 1978. A false ant-hill was built in the chimpanzee enclosure on 22 December of that year and then introduced to the chimp colony on the following day. It was a very unique Christmas present for them. The structure of that mound is a cylindrical concrete hill 80cm high with a foundation stone (length 100cm x breadth 100cm x depth 40 cm) underground. We are able to place two plates filled with honey dew on the platforms in the center. Recently either tomato or fruit juice is offered. Six chloridate vinyl pipes measuring 1.3cm in diameter go through from the outside to the plates. (See Figure I).



(I) "false ant-hill" of chimpanzee colony

The chimps must insert poking sticks up to a length of 30 cm for feeding. In 1968, Jane Goodall of England published an account of how chimps used tools to "fish" for termites. Taking a hint from this fact, Zoo staff members provided this opportunity for the chimps, exploring this behavior Goodall had recorded ten years earlier. Within one hour after introduction to the false ant-hill, five chimps began to lick it, and now all of the colony have become accustomed to it. Their action has come as part of their daily lifestyle and a fixture in their routine. It has offered relief from boredom for the chimps and is an educationally interesting addition to the exhibit. Besides, as a result of this trial, unauthorized feeding by zoo visitors is on the decrease.

Following this experiment with the chimp colony, the orangutan group was provided with an artificial "hornet's nest" on 25 November 1980. This bottle-shaped beehive is constructed of reinforced concrete with an H-shaped steel post. The gross weight is 600kg. (See Figure II)

The chimp colony was further tested to ascertain their mental capabilities and to help reduce their stress on 19 May, 1981. A mirror made of steel (150cm x 90cm) was placed in the chimp enclosure. Zoo staff members made observations to see whether the chimps could recognize themselves in the mirror. Reactions of the animals began with their greet-

ing attitude. Some chimps menace while others hit and kick at their images. After about eight minutes, they checked the mirror calmly. There wasn't much confusion in the colony because of the reactions of the dominant animal. The study has recorded valuable reactions such as a chimp wiping the mirror with a cloth and looking from the reflection to the real body.

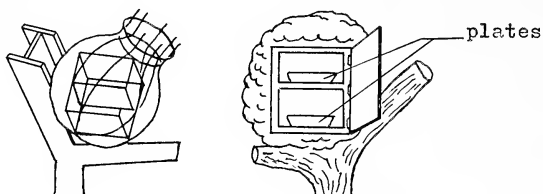


FIGURE II

(II) "artificial hornets' nest"  
of orang-utan's group

The latest trial has set forward a private program in the chimp's indoor exhibit as a link to the experiment for using tools which was conducted from last October to this past July. Zoo staff, in cooperation with the Jochi University, studied the behavior of the chimps when they attempted to crack a walnut using a stone-implement. This test began on 19 August, 1981. Three selected chimps were presented with a stone stand with three pits into which walnuts had been placed. The stand measured 30cm x 40cm x 70cm. When presented with a hammer-type stone (length 15cm, weight 1.5kg), the three chimps used it as a nutcracker.

The experiments described here will continue in an attempt to test the intelligence of the apes. We hope that the showing of the ecology of a gorilla in Zoo-display is realized under the basic plan at the Tama Zoo.



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#### NATIONAL DOCENT CONFERENCE HELD

The Cheyenne Mountain Zoo Auxiliary hosted a three-day National Docent Conference in October for 156 delegates representing 36 zoos from the U.S., including Hawaii, one from Canada (Calgary) and one from Bermuda. The Conference agenda presented a broad range of subjects in educational programming and volunteer management. Workshops and individual presentations focused on current trends in zoos and aquariums, long-range planning, fund-raising, motivation and burnout, communication techniques, recruiting strategies, funding cutbacks to zoos and synopses of successful education programs. Similar conferences on a national basis are planned for every three years and delegates stressed the importance of actively participating in regional AAZPA meetings.

--S. Cogswell  
in AAZPA Newsletter



KEEPER EXCHANGE PROGRAM  
AT THE SEDGWICK COUNTY ZOO

By  
Terry Lincoln, Veldt Keeper  
Sedgwick County Zoo, Wichita, KS

Several years ago, a few keepers at our Zoo felt that going to another Zoo and working for a brief period would be fun as well as interesting. We felt that both the keepers participating and hopefully the receiving establishment would benefit.

The Keeper Exchange Program at the Sedgwick County Zoo was born! Over the past five years, twelve keepers traveling to ten different zoos have taken advantage of this enlightening benefit.

It is an enjoyment in itself to see keepers return from such a journey all bright-eyed and bushy-tailed, anxious to put procedures seen through another's eyes to the test.

There are a few rules we keepers must abide by on this program:

- (1) Keeper must have worked at the Sedgwick County Zoo for at least one year,
- (2) There must be forty hours of work waiting for the keeper,
- (3) Keeper is liable for all expenses,
- (4) Keeper must write a report of accounts on the exchange,
- (5) Keeper is not eligible again until a year has passed and scheduling permits.

The Keeper Exchange Program has given our Zoo and its keepers many invaluable tips and tidbits on all aspects of successful Zookeeping. We are only recently becoming the recipient from other Zoos, but as more and more keepers realize the priceless lessons they will experience, I'm sure the number of "exchangers" will increase.



## Information Please

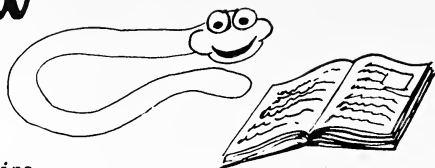
### INFORMATION REQUESTS

Information is sought concerning estrus suppression in Chimpanzees (Pan troglodytes). Also, information is needed concerning nutritional diseases with respect to husbandry problems in hand-raising Common terns (Sterna hicundo). Any information should be sent to Gerald K. Beekman, D.V.M., 55 Butler Street, South Berwick, ME 03908.

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Information is requested concerning the genus Rupicola (Cock-of-the-Rock) i.e. behavior, especially that of courting and breeding. Also any information on captive breeding programs. Send information to Mary Millet, Bird Keeper, Dallas Zoo, 621 E. Clarendon, Dallas, TX 75203-2996.

# Book Review



## Wildlife of the Prairie and Plains

By Kai Curry Lindahl, 1981  
Published by Harry N. Abrams, Inc.  
New York, N.Y.

Review by Joan Marie Stinson  
Keeper II, Phoenix Zoo

This is the first time I have ever found a book of this nature so interesting that I could sit down and read it in just a few evenings. The author explains the types of habitats found in the world's grasslands, touching briefly on each of the animals inhabiting them. The animals and plants discussed in the text are represented in a large collection of fine color photographs. Unfortunately, the pictures do not coincide with the text, causing some confusion.

Generally, the information accompanying Lindahl's descriptions, though not consistent, touch on behavior and reproduction. He carefully explains the impact of natural disasters, i.e. fires, floods and drought. But more important, he explains the impact of man's habitation, not just on the wildlife populations, but the impact of man on the land, completely changing the habitat, destroying the naturally occurring plants and eventually the soil itself.

The information contained in the text is valuable as a basic reference, although I question some of the information. For example, Lindahl states that "The tail of the giant anteater is long and bushy, but is usually hairless in captivity." I question what he is basing this information on and the value of such a statement in this book.

The last thirty-one pages contain a well-organized appendix including a glossary and careful definitions. There are also illustrations of the grasses described in the book along with a detailed description of the even-toed ungulates (*Artiodactyls*).

I feel that Wildlife of the Prairie and Plains could be of value to any zoo's research library. Though not extensive, the use of both scientific and common names makes further research easy. I found some of his information stimulated my interest to the point of looking for further information in other books. The author's writing style of including his own personal experiences makes the book easy, enjoyable reading just for the sheer pleasure of it. This book is part of a series of wildlife texts dealing with the animals of various ecosystems and habitats.



This "Canticleer Press edition" is hardbound and costs \$18.95. It is available from the publisher Harry N. Abrams, Inc., 110 East 59th St., New York, NY 10022.

# Legislative News

*Compiled by Kevin Conway*

## SIGN OF THE TIMES

The Interior Department recently accepted comments on an environmental assessment that would allow certain golden eagle nests to be removed if they interfere with energy resource development or resource recovery operations. Moving the nests is banned by the Eagle Protection Act of 1978.

*---The Washington Post*

## WASTED WILDLIFE: PRIMATE MORTALITY

How many animals die during capture, in holding facilities, in transit, on arrival (DOA), or shortly thereafter? Mortality statistics are perhaps the least publicized aspect of wildlife trade.

TRAFFIC (U.S.A.) recently received primate import documents which included mortality data from the Center for Disease Control (Dept. of Health and Humane Services) in Atlanta. Total mortality ranges from less than 20% for the more hardy macaques and baboon species, to 50% for the smaller African and New World monkeys.

The shippers from some countries report fewer primate deaths than from other countries. For example, both Ethiopia and Kenya export olive baboons and African green monkeys (vervets). The mortality rate is 13% versus 5% for olive baboons and 49% versus 24% for vervets for each of these countries respectively. This may be due in part to the holding and shipping techniques used by the dealers. For instance, Kenya recently held up a shipment of vervets from Ethiopia on its way to Moscow for violation of shipping regulations. Within 24 hours of the seizure, animals began dying from a viral disease. At least 157 of the 220 monkeys died before veterinarians decided to euthanize the rest. A previous shipment to Kenya of 100 baboons from Ethiopia had already suffered the same fate.

While the above data are only importation mortality rates, one Indonesian primate dealer in 1979 produced a report on long-tail macaque mortality between capture and shipping. He stated that 68% of the macaques die or are in poor condition prior to export. The mortality rates are: 5% at capture, 3% from transport to holding site, 8% at holding site, 10% from holding site to collector, 7% from collector to exporter, and 10% at exporter's compound. Another 25% are disqualified from transport by wounds or disease.

Mortality is rarely included in discussions of a species' status in trade; and yet for some countries, perhaps two primates, if not more, die for every one that reaches its final destination. Mortality is inevitable in the live wildlife trade. But its eventual impact on wild populations has hitherto gone undetected or been ignored.

*---TRAFFIC (U.S.A.) Newsletter  
Vol. 3, No. 3, 1981*

CITES MEMBERSHIP UP TO 73

In 1981, several more countries ratified the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). The count now totals 73 countries.

From among these new member countries, the U.S. imports live birds and reptiles from Suriname, hunting trophies from Zambia and Zimbabwe, live birds from China, live birds and reptile skins from Argentina, and live birds and primates, and reptile skins from the Philippines.

Belgium is close to ratifying CITES and its membership will be important since it is one of the few countries still importing Appendix I endangered species. Belgium's ratification will likely be followed by that of the Netherlands and Luxembourg under the Benelux trade agreement between these three countries.

Columbia, the most recent CITES member, was one of the world's largest wildlife exporters ten years ago. Despite a wildlife export ban in 1973, later reinforced in 1978, the wildlife trade continued illegally. For instance, this year Columbia exported at least three commercial shipments of reptile skins to the United States. According to TRAFFIC (U.S.A.) sources, the export permit accompanying each shipment bore the same permit number, and the exporting firm, Reptiles Tropicales, does not exist.

---TRAFFIC (U.S.A.) Newsletter  
Vol. 3, No. 3, 1981

FINAL REDEFINITION OF "HARM"

This final rule is a redefinition of the Fish and Wildlife Service regulation defining "harm" under section 9 of the Endangered Species Act, 50 CFR 17.3 "Harm" is redefined to mean any action, including habitat modification, which actually kills or injures wildlife, rather than the present interpretation which might be read to include habitat modification or degradation alone without further proof of death or injury. Habitat modification as injury would only be covered by the new definition if it significantly impaired essential behavioral patterns of a listed species. This rule became effective on 4 November, 1981.

---Federal Register  
November 4, 1981

MARINE MAMMAL PROTECTION ACT

The Marine Mammal Protection Act reauthorization was passed by both the House and the Senate in late September and the President signed it into law 9 October 1981. The period of reauthorization is three years.

Several important amendments to the Act were made. The most pertinent concerns the process of getting permits for taking marine mammals for scientific research or public display purposes. The bill, as it was reported out of the House Merchant Marine and Fisheries Committee, provided that once a state had received management authority over a species, it would have an additional 30 days after the Secretary of Commerce had issued a permit to exercise veto authority over the permit. Since this would add unnecessary delay to the permitting process, AAZPA Washington representatives worked hard to get this provision deleted from final

passage of the bill. Congressman John Breaux, author of the Marine Mammal Protection Act Amendments of 1981, and chairman of the House subcommittee with jurisdiction over this legislation, was sympathetic to our point of view and was successful in dropping the additional 30-day requirement from the bill.

As the law now stands, a state with management authority over a marine mammal species must make its position known to the appropriate federal agency within the existing time frame for processing Marine Mammal permits.

---AAZPA Newsletter

#### NOMINEE FOR FWS DIRECTOR RECEIVES UNANIMOUS CONFIRMATION

Describing himself as "deeply committed to the protection, restoration, enhancement, and management of the fish and wildlife resources of the nation," Robert Jantzen, nominee for Director of the U.S. Fish and Wildlife Service, received unanimous support during his 27 October confirmation hearing before the Senate Committee on Environment and Public Works.

Noting the candidate's solid credentials as a natural resource professional having a long career in wildlife administration, Dr. Alan Wentz of the National Wildlife Federation urged rapid Senate confirmation. He stated, "This (nomination) stresses the point that the position of the Director of the U.S. Fish and Wildlife Service should be filled on the basis of qualifications rather than political affiliation."

Jantzen, a professionally-trained wildlife manager, has served as Director of the Arizona Fish and Game Dept, Chairman of the Pacific Flyway Council and National Waterfowl Council, President of the International Association of Fish and Wildlife Agencies, and Southwestern U.S. Regional Representative for The Wildlife Society. The IAFWA, National Audubon Society, Wildlife Management Institute, TWS, and the Environmental Defense Fund were among the many organizations supporting Jantzen's confirmation. Arizona Senators Barry Goldwater and Dennis DeConcini and Rep. John Rhodes all praised the candidate's past 13 years of service with the state fish and game department.

Committee chairman Sen. Robert Stafford (VT) emphasized the importance of the position when he cited the agency's responsibilities for "the Federal endangered species and migratory bird conservation programs; predator control; the 89 million acre, 410 unit national wildlife refuge system; the national fish hatchery system; Federal fish and wildlife research; Federal law enforcement; and other programs aimed at minimizing environmental degradation to fish and wildlife habitat throughout the nation."

Jantzen's nomination capped an almost 10-month period in which the FWS had been without a permanent Director.

---Conservation Report  
National Wildlife Federation  
November 1981



PLEASE, DO NOT FEED!

By  
Regina A. Grebb, Feline Keeper  
Pittsburg Zoo

Many visitors to the Pittsburg Zoo this year were disappointed to see a plethora of signs proclaiming a ban against the feeding of animals. The ticket booth at the entrance to the Zoo warns patrons that marshmallows are forbidden. The primate enclosures abound with such expletives as: DO NOT FEED/DO NOT PUT FINGERS NEAR CAGES or THIS ANIMAL IS ON A SPECIAL DIET. Vending machines that once supplied peanuts to the elephants exist no more. The concession stands no longer sell stale bags of bread as "animal food".

Why this sudden "about face" attitude on the part of Zoo officials concerning the feeding of animals by the public? After all, visitors have been coming to the Zoo and feeding animals since the late 1800's. Why shouldn't this practice continue?

There are several good reasons why Zoo policy about public feeding has evolved from benevolent acceptance to prohibition. The most serious reason is the sharp increase in animal illness and even death associated with foreign object impaction. This past summer at the Pittsburg Zoo, no less than four Himalayan tahr (*Hemitragus jemlahicus*) have suddenly sickened and died. In every case the post mortem results attributed death to small plastic bags blocking the juncture between the stomach and intestine--the pyloric sphincter. These plastic bags were thoughtlessly tossed into the animals' enclosure along with stale Count Chocula and moldy Town Talk. After every major holiday, goats and sheep must be treated for bloat caused by overfeeding. Dolphins once exhibited in the large, circular tank at the Aquazoo died of metallic poisoning from coins. Example after example can be cited to illustrate this common problem. Every zoo has its own horror stories.

Zookeepers and visitors suffer also, when food items and foreign materials are thrown into the animals' enclosures. A few months ago a child was severely bitten when his mother lifted him over a safety barrier to feed a seemingly innocuous gibbon. Keepers are sometimes injured, both physically and verbally, when attempting to extricate from enclosures objects possibly injurious to their charges. Another factor visitors fail to consider is zoonotic disease. Many illnesses common to man can be transmitted to other species and vice versa. This is especially true for primates who are susceptible to infectious maladies such as flu, TB and polio.

Another reason why feeding by the public is no longer permitted is NUTRITION. All of our animals receive adequate amounts of appropriate foods. Often there is a delicate balance between essential vitamins and minerals that can be easily upset by additional "treats". Zoo nutrition has made enormous strides during the past twenty years. Today's Zoo animals are fed scientifically designed diets that reflect the nutritional needs of their bodies. They also get the finest fruits and vegetables available to add some variety to their diets.

Public feeding creates an additional source of litter that is unsanitary and unsightly. Garbage-strewn exhibits are a further affront to the dignity of an animal that must endure a lifetime of captivity in less than natural surroundings.

Finally, it is considered passe to permit feeding of animals by visitors. Many mainstream Zoos actively enforce anti-feeding regulations. The Pittsburg Zoo tends to take a passive view of this problem. The public must be aware and informed before we take any drastic measures on previously accepted practices. Some keepers tend to be lacadaisical in enforcing such policies while others rule with an iron fist. It is extremely confusing to a visitor to be told by one keeper that feeding is permitted while being screeched at by another that feeding is not allowed.

Despite everything, a few visitors insist on feeding animals. Psychologists allow such behavior to be based not on real love of animals, but on human egoism. Certain types of people get special satisfaction from having an animal feed out of their hands. Others feel sorry for the animal stuck behind bars and offer food as a substitute for freedom.

The next time you visit the Pittsburg Zoo or any Zoo, do yourself AND the animals a favor: PLEASE DO NOT FEED!



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# Chapter

Newly elected officers for the  
Indianapolis AAZK Chapter are:

President....Bill Christie  
V.P./Tres....Lynne Villers  
Secretary....Laurie Christie



Officers of the Topeka AAZK Chapter are:

President....Kitty Shipman  
Vice. Pres....Mike Coker  
Secretary....Alice Miser  
Treasurer....John Brannian

During the month of November the Topeka AAZK Chapter busily made several items to sell at the annual Topeka Friends of the Zoo 'Bearzaar' held December 4 and 5. This year they made snake draft dodgers, feather earrings, feathers mounted on greeting cards and ink-on-glass drawings with lead frames. AAZK sales were brisk at the event and the Chapter has decided to use the money earned each year at the 'Bearzaar' to pay for the AAZK national membership dues for Topeka keepers.

The Topeka Chapter has also helped to sponsor keeper exchanges to other zoos. They have had two keepers visit other zoos on exchanges this year. Projects the Chapter is planning for the spring include keeper lectures and story hours for children.

# News

# THE STRUGGLE FOR SURVIVAL

## RARE BLACK-FOOTED FERRET FOUND IN WYOMING

A rare black-footed ferret, the only positively known living member of its species, has been captured alive in Wyoming and outfitted with a tiny radio transmitter so that Federal wildlife biologists can learn more about the habits of these secretive, nocturnal animals.

The ferret, captured 29 October by wildlife biologists of the Interior Dept.'s U.S. Fish and Wildlife Service, is the first live black-footed ferret to be taken in the wild since 1973, in spite of intensive searches by Federal and State biologists in a number of western states.

"We are quite excited about finding this extremely rare, endangered animal and having the opportunity to monitor its movements," said Eugene Hester, deputy director of the FWS. "By studying this animal, we hope to obtain information that will help wildlife biologists bring this species back to healthy numbers."

The ferret, a male judged to be no more than two years old and weighing about two and one-quarter pounds, was spotted in a prairie dog colony by wildlife biologists who were looking for ferrets. They followed it to a hole where they succeeded in capturing it in a live-trap when it emerged several hours later. The biologists attached a small radio-transmitter to a collar placed around the ferret's neck, observed the animal overnight, and released it unharmed in the morning. The transmitter is expected to operate for 4-6 months, enabling biologists to gather information about such factors as the ferret's daily and seasonal activity patterns, the amount of time it spends in burrows, its feeding activity, and whether it is nomadic. It is also hoped that the radio-tagged ferret may lead biologists to other ferrets.

The exact location of the ferret's capture is being withheld to avoid disturbance to the landowners and to the scientific work. All of the work involving the ferret is being conducted under a Federal permit, which is required because the ferret is protected under the Endangered Species Act.

Considered by many wildlife biologists to be the most severely endangered mammal in the United States, the black-footed ferret is a weasel-like animal about 24-inches long with a black mask over its eyes, black feet, and a black-tipped tail. The last captive ferret died in 1978.

--Dept. of the Interior  
Fish and Wildlife Service



### AAZK T-SHIRTS AVAILABLE

AAZK T-shirts with the official emblem are now available. The price is \$5.49 plus \$1.00 for shipping and handling. Sizes Small, Medium and Large are available in tan, red, lemon yellow and royal blue. Size Extra-Large is available in tan and royal blue only. To order, please complete the coupon below and send with a check or money order to: Carleton Bailie, c/o Akron Zoo, 500 Edgewood Ave., Akron, OH 44307.

Please send \_\_\_\_ T-shirt(s) at \$5.49 plus \$1.00 shipping and handling.

Size: \_\_\_\_ small \_\_\_\_ medium \_\_\_\_ large \_\_\_\_ extra-large

Colors: \_\_\_\_ Tan \_\_\_\_ Red \_\_\_\_ Lemon yellow \_\_\_\_ Royal blue

Name: \_\_\_\_\_ Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

### AAZK ACCESSORIES AVAILABLE

Decals: The official AAZK decal is available through the Memphis Zoo Chapter. The decal is a black and white reproduction of the AAZK rhino logo, suitable for any smooth, hard surface, especially a car window. Cost is \$1.50 complete, prepaid. Make checks payable to the Memphis Chapter, AAZK and send directly to Mike Maybry, Decal Project Coordinator, 1887 Crump Ave., Memphis, TN 38107.

Buttons: For a "Keepers Care" Button, send the coupon and 50¢ to: Larry Sammarco, Lincoln Park Zoo, 2200 N. Cannon Drive, Chicago, IL 60614.

Please send \_\_\_\_ button(s) for 50¢ each.

Name: \_\_\_\_\_

Address: \_\_\_\_\_

City

State

Zip

Pins And Charms: Enameled three-quarter inch pins and charms with the official AAZK logo are now available. They are done in the same colors as the AAZK Patch and the charms are suitable for necklaces (you provide the chain). The price per pin or charm is \$3.50 which includes postage. To order send your name, complete mailing address, number of pins or charms desired to: AAZK National, 635 Gage Blvd., Topeka, Ks 66606. Make check or money order payable to AAZK National.



We are indebted to the AAZPA Newsletter for allowing us to reprint portions of this section from their "Positions Available" listing. This is a monthly service to us, for you.

REPTILE KEEPER...Full-time position. Preferred qualifications include Associate or four-year degree in Animal Science or Biology field. Previous experience with diversified, venomous, herpetological collection. Keeper or related experience may be considered as substitute for educational requirement. Salary \$11,170-\$14,000, plus benefits. Submit application to: Frederick L. Paine, Curator/Birds and Reptiles, Buffalo Zoological Gardens, Delaware Park, Buffalo, NY 14214. EOE

ANIMAL CARE SUPERVISOR...supervisory position involving care, feeding, handling and maintenance of collection. Requires thorough knowledge of animal husbandry, and at least 2 years' related experience, one of which should be in supervisory capacity. Desire a degree in relevant field, although candidates possessing a combination of education and experience will be considered. Salary \$11,000-\$12,200. Send resume to: Michael J. Janis, Director, Akron Zoological Park, 500 Edgewood Ave., Akron, OH 44307. (216) 375-2298. EOE.

PRIMATE KEEPER...specializing in lemurs and guenons. Request prior experience with diversified primate collection. Prefer zoological or related field degree; experience may be considered as substitute for academic qualifications. Send resume to: Carl F. Watson, Asst. Director, Louisiana Purchase Gardens and Zoo, P.O. Box 123, Monroe, LA 71201.

2 PRIMATE AND 1 SMALL MAMMAL KEEPER POSITIONS...minimum qualifications include high school diploma and one year paid experience working with exotic animals in a zoo environment. Responsible for day-to-day care and maintenance of varied collection. Salary \$530 biweekly, plus benefits. Make inquiries and send resumes to: Mary Gilbert, Supv./Primates or Pam Thompson, Supv./Small Mammals, Houston Zoological Gardens, 1513 Outerbelt Drive, Houston, TX 77459.

ANIMAL KEEPER...under supervision, responsible for care, feeding, handling and treatment of exotic animals and maintenance of animal enclosures and grounds. Requires minimum one years' relevant experience. Salary \$17,030-\$20,592. Qualifications also include: observation and reporting skills, public relations skills, physical strength and driving ability. All applicants must submit a Supplemental Application with the regular examination application at the time of filing. Applications will be accepted until there is a sufficient number of qualified applicants to warrant holding an examination. Qualified applicants will be notified of the exact time, date and place to report for the examination. Early response requested. Submit resume to: San Francisco Civil Service Commission, Exams Div., 646 Van Ness Ave., San Francisco, CA 94102 -- attn: Ms. Van Putten. (415) 558-2935.

ASSISTANT CURATOR OF MAMMALS...advanced degree and managerial experience in zoological park preferred. Must be able to write for technical and popular audiences, take charge of projects, manage animal care staff, establish care and feeding techniques, design exhibits, and identify and label specimens. Send resume stating salary requirements to: James B. White, Personnel Manager, New York Zoological Society, 185th St. & Southern Blvd., Bronx, NY 10460.

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# AAZK MEMBERSHIP APPLICATION

Name \_\_\_\_\_ Check here if renewal [ ]

Address \_\_\_\_\_

\_\_\_\_\_ \$20.00 Professional Full-time Keepers only and International Members  
\_\_\_\_\_ \$10.00 Associate Individuals not connected with an animal care facility  
\_\_\_\_\_ \$15.00 Affiliate Other staff and volunteers  
\_\_\_\_\_ \$50.00 Contributing Organizations and individuals

Directory Information U.S CURRENCY ONLY PLEASE

Zoo \_\_\_\_\_ Work Area \_\_\_\_\_ Special Interests \_\_\_\_\_

Mail this application and check or money order, payable to American Association of Zoo Keepers, to: AAZK National Headquarters, Topeka Zoo, 635 Gage Blvd., Topeka, KS 66606.

Memberships include subscription to the *Animal Keepers' Forum*.  
The membership card is good for free admission to many zoos and aquariums in the U.S. and Canada.



## INFORMATION FOR CONTRIBUTORS

*Animal Keepers' Forum* publishes original papers and news items of interest to the Animal Keeping profession. Non-members are welcome to submit articles.

Articles should be typed or hand-printed. All illustrations, graphs and tables should be clearly marked, in final form, and should fit in a page size of no more than 6" x 10" (15 cm. x 25½ cm.). Literature used should be cited in the text and in final bibliography. Avoid footnotes. Include scientific names.

Articles sent to *Animal Keepers' Forum* will be reviewed for publication. No commitment is made to the author, but an effort will be made to publish articles as soon as possible. Those longer than three pages will be separated into monthly installments at the discretion of the editorial staff. The editors reserve the right to edit material without consultation unless approval is requested in writing by the author. Materials submitted will not be returned unless accompanied by a stamped, self-addressed envelope.

Telephoned contributions on late-breaking news or last minute insertions are acceptable. However, phone-in contributions of long articles will not be accepted. The phone number is 913 272-5821.

DEADLINE FOR EACH EDITION IS THE 15TH OF THE PRECEDING MONTH.

*Articles printed do not necessarily reflect the opinions of the Animal Keepers' Forum editorial staff or of the American Association of Zoo Keepers.*

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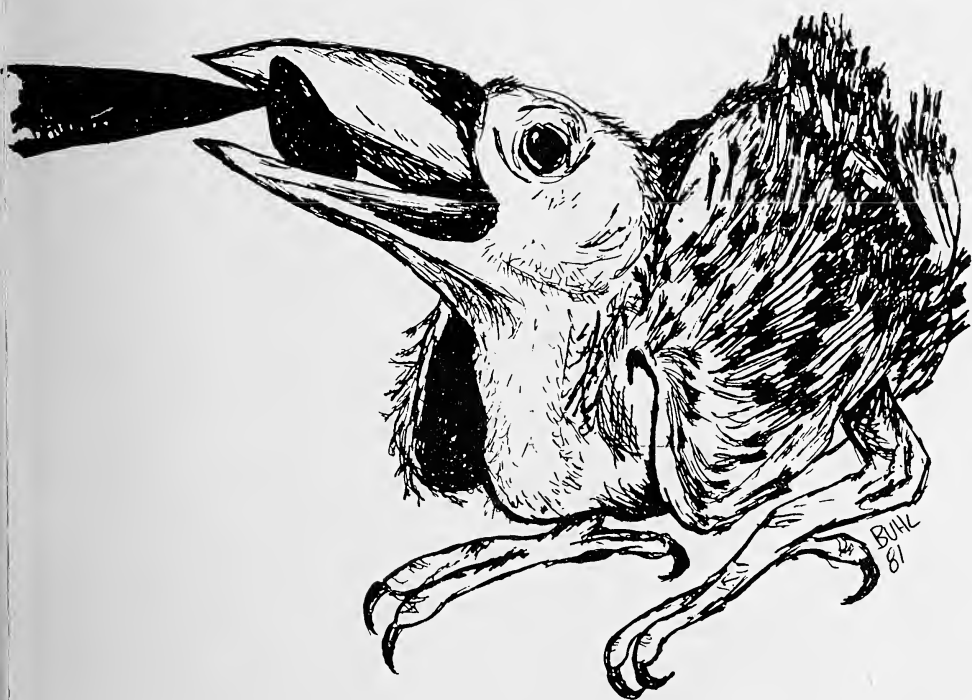


Elizabeth Frank  
3314 N. 22nd St.  
Arlington VA

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22201

# Animal Keepers' Forum



*Dedicated to Professional Animal Care*

FEBRUARY 1982

Executive Editor: Mike Coker  
Managing Editor: Susan Chan  
Associate Editor: Connie Cloak  
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Mike Maybry, Memphis Zoo

#### PROJECT HEADS

<u>Coordinator for Chapter Affairs</u>	<u>Coordinator for International Affairs</u>
Patti Kuntzmann, Philadelphia Zoo	Karen Starr Wakeland, Midlothian, TX
<u>Keeper Data Survey</u>	<u>Infant Development Project</u>
Mike Maybry, Memphis Zoo, TN	Marcia Clevenger, Oklahoma City Zoo
<u>Legislative Information</u>	<u>Keepers' Accommodation List</u>
Kevin Conway, NZP/CRC, VA	Fran Turner, Metro Toronto Zoo, Ont.
<u>Animal Data Transfer Forms</u>	<u>Book Reviews</u>
Bernard Feldman, Miller Zoo, IL	Ellen Leach, Woodland Park Zoo, WA
<u>Program Library &amp; Information Center</u>	
Ellen Leach, Woodland Park Zoo, WA	

#### REGIONAL COORDINATORS

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Laurence Gledhill	Woodland Park Zoo	WA, OR, ID, MT, WY, AK
Patrice Carbaugh	Los Angeles Zoo and	
Joan Stinson	Phoenix Zoo	CA, NV, AZ, UT, HI
Kathy Rettie	Metro Toronto Zoo	CANADA

This month's Keeper/Artist is Kristin Buhl, Senior Keeper in the Bird Department at the Phoenix Zoo. Her artwork features a red-breasted Toucan nestling being hand-fed. Kristin's article on her experiences hand-rearing two parent-abandoned chicks is on page 28 of this issue. Thanks, Kristin!

# Scoops and Scuttlebutt

## AKF FOUNDERS RECOGNIZED BY PAST EXECUTIVE EDITOR

I would like to thank the members of AAZK and the 1981 Conference delegates for my recent recognition. I was deeply honored to receive the Certificate of Distinguished Service and honorary Life Membership.

AKF was founded in 1974 and was produced and supported by many people. Chris LaRue, Vicky La Rue, Judie Steenberg, Rick Steenberg, Dave Ruhter, Linda Weiss and Perry LaBelle were all involved in those first mimeographed issues. We drank a lot of coffee and lost a lot of sweat during the first years. Other AAZK members offered advice and support. We set out to improve the image and professionalism of animal keepers. I'm happy to say that we succeeded.

AAZK continues to grow and prosper. It deserves the support of each of its members to help it maintain the fine level of professionalism for all animal care personnel.

Best wishes to each of you and keep on caring.

---Ron Kaufman



## *from the President*

Dear Fellow Board Members,

It's time to thank Bernie for a term well served, and for all the energy he has put into helping the Association run smoothly.

It's time also to welcome Kevin to four years of work and satisfaction in helping AAZK continue to grow and serve its members.

I thank you for your unanimous support in re-electing me to the presidency, and would like to reaffirm my concept of this office as one of coordinator for Board decisions and members' concerns.

---Patricia Sammarco  
AAZK President

# Births & Hatchings

## RECENT BIRTHS AND HATCHINGS AT SAN ANTONIO ZOO.....Cindy Roger

The San Antonio Zoo is pleased to announce the following births and hatchings for the month of December 1981. In Mammals, 0.1 Reticulated Giraffe, 0.1 Eland, 1.0 Addax, 1.1 Gemsbok, and 0.1 Thomson's Gazelle were born. The Aquarium produced 2 African Lyretail Cichlid, 10 Convict Cichlid, and an undetermined number of African Checkered Cichlids and African Zebra Cichlids. The Bird Department hatched 3 Painted Quail and 2 Diamond Dove.

The San Antonio Zoo recently received AAZPA First Breeding Awards for the Agile Gibbon and Turkish Viper. They have previously been awarded First Breeding Awards for the White Rhino, Giant Pitta and African Spurred Tortoise.

## GAUR BIRTH AT BRONX ZOO.....J. Doherty

On 24 October 1981, a female gaur calf was born at the Bronx Zoo. The parents of the calf are the same pair that produced the male calf born in the Zoo on 11 August after superovulation and cross-species embryo transfer to a Holstein cow (see story Sept. 1981 AKF).

## DALLAS ZOO ANNOUNCES DECEMBER ARRIVALS.....Penny Tadmor

December 1981 births and hatchings at the Dallas Zoo include: 2 Suni Antelope (1 died the same day), 5 Black swan, 1 East African Oryx, 2 Greater Kudu, 1 Whitecheeked turaco, 1 Dik-Dik (died same day), 3 Spotted leopard, 1 Blackbuck and 1 Nile Lechwe.

## SECOND HALF OF 1981 BRINGS MANY "B&H" AT RIVERBANKS ZOO

*Submitted by L. Glover, bird of prey keeper  
and A. Vecchio, cat and bear keeper*

Once again we have had a very successful year here at Riverbanks Zoo, Columbia, SC. We successfully bred forty-seven bird species which is 36.7% of our total species number. Thirteen species were first-time births for Riverbanks. The mammal department recorded second generation births for our White-faced saki monkeys and Black howler monkeys. We also recorded our first siamang birth.

Other births include: 2.0 Eclectus Parrot, 0.0.2 Pied hornbill, 0.0.3 Schalow's touraco, 0.0.6 Blue bill weaver, 0.0.3 Sun conure, 0.0.3 Gouldian finch, 0.0.1 Black footed penguin, 0.0.5 Purple grenadier, 0.0.5 Red-crested touraco, 0.0.4 Rothchild's mynah, 0.0.5 Blue crowned motmot, 0.0.9 Roul roul, 0.0.4 Luzon bleeding heart dove, 4.2 White-faced tree duck, 3.1 Cape teal, 9.2 Ringed teal, 3.1 Black-necked swan, 0.0.3 Emerald toucanet, 0.0.2 Fairy bluebird, 1.3 Brazilian teal, 0.3 Laysan teal and 4.5 Wood duck. In mammals -- 0.1 Siamang, 0.0.1 White-faced saki monkey (F2), 0.0.2 Black howler monkey, 1.0 Bennett's wallaby. The mammal department has also recently acquired 2.4.0 Lion-tailed macaque and 1.1.0 Golden lion tamarin.





# Coming Events

## AAZPA NORTHEAST REGIONAL CONFERENCE

March 7-9, 1982                      Toronto, Ontario, Canada

## AAZPA SOUTHERN REGIONAL CONFERENCE

March 21-23, 1982                      Montgomery, Alabama

## AAZPA WESTERN REGIONAL CONFERENCE

April 4-6, 1982                      Penticton, B.C., Canada

## NORTH AMERICAN SYMPOSIUM: CHEMICAL IMMOBILIZATION OF WILDLIFE

April 4-6, 1982                      Milwaukee, Wisconsin

For symposium program and registration information, write or call: Leon Nielsen, Wisconsin Humane Society, 4151 N. Humboldt Ave., Milwaukee, WI 53212. (414) 961-0310.

## FIFTH ANNUAL INTERNATIONAL WILDLIFE FILM FESTIVAL

April 16-18, 1982                      Missoula, Montana

The Film Festival will be held at the University of Montana. Deadline for film entries is 19 March 1982. For further information write or call: Wildlife Film Festival, Wildlife Biology Program, University of Montana, Missoula, MT 59812. (406) 243-5272.

## AAZPA GREAT LAKES REGIONAL CONFERENCE

April 18-20                      Columbus, Ohio

## RAPTOR MEDICINE AND REHABILITATION WORKSHOP

April 24, 1982                      Indianapolis Zoo

The Workshop will run from 9 a.m. to 6 p.m. and will feature guest speaker Dr. Pat Redig, College of Veterinary Medicine, University of Minnesota. Includes Diagnostic Procedures, Anesthesia, Surgery, Medicine and more. Registration fee of \$25.00 includes lunch. Registration deadline is April 10, 1982. For further information, please write to Indianapolis Zoo, Education Dept., 3120 30th St., Indianapolis, IN 46218.

## AAZPA CENTRAL REGIONAL CONFERENCE

May 2-4, 1982                      El Paso, Texas

## TROPICAL HABITATS WORKSHOP

May 6-7, 1982                      Topeka, Kansas

For further information on workshop topics, registration and accommodations, please see Page 46 of this issue of AKF.



## HAND-RAISING TOUCANS AT THE PHOENIX ZOO

## *Bird Calls*

Kristin Buhl,<sup>By</sup> Senior Keeper  
Bird Department

In May 1981, our pair of Red-breasted toucans (*Ramphastos dicolorus*), also known as the Green-billed toucan, went to nest in a five-foot tall date palm log, 18" in diameter. A cavity about 8" wide and 18" deep had been hollowed out by the keepers, as toucans do not excavate their own nest sites (they use abandoned woodpecker nests or rotted trees). A hole 4" in diameter, 4" from the top of the log, was punched in the side, and a plywood lid nailed to the top.

The adults were fed a crock of a variety of chopped soft fruits and vegetables, dry dog kibbles (Wayne bite size), and bird-of-prey meat. Mealworms, crickets and mice offered to them prior to the young hatching was ignored, but once they were feeding young, mice became a favored portion of the diet (insects were still avoided). Sparrows that entered their exhibit were killed by the adults and also fed to the young.

The amount of food and number of feedings was doubled once the young hatched. Mynah bird pellets and dog food kibbles were offered both moistened and dry; the adults preferred the moistened for feeding the young. The pellets and kibbles were soaked in water with Vilecsol, a bird multi-vitamin, and Osteoform, a calcium/phosphorus supplement, was added to the bird-of-prey meat. Fruits and vegetables included: grapes, cherries, peas, zucchini, banana, tomato, orange, plum, peach, soaked raisins and celery tops.

Toucans have a relatively short incubation period of 16-19 days (depending on the species), but a 7-week term of parental care. Sixteen days after the eggs were discovered, it was evident that young had hatched. Two weeks after the hatching, however, two of three chicks were evicted from the nest by the parents and so taken to be hand-raised. The parents continued to raise the third nestling, but after two more weeks, it was also evicted from the nest, dead.

The two pink, naked chicks were fed once every half hour from sunup to sundown for three weeks, after which feedings were gradually reduced to once every hour until eating on their own. Pinky mice, grapes, cherries, zucchini and peas were favored items; banana and apple least.

Advancement in their development could be seen daily. The eyes didn't begin to open until they were three weeks old and took nearly a week. By five weeks of age, differences in the size of their heads and shape of their beaks intimated that they were male and female, the female's beak having a higher arch and being slightly shorter (Dimorphism in Red-breasted toucans is slight even in adults).

By seven weeks, they were mastering eating on their own and learning to fly and perch. Drinking water was one of the last feats to accomplish. By ten weeks, the heel pads (a calloused area on the heel to prevent abrasion of the leg while in the nest cavity) was markedly diminished. By four months of age, their feathering and coloration was nearly identical to that of the adults, and they were gradually losing their tameness.



# Observation Techniques

## AN INEXPENSIVE ONE-WAY SCREEN FOR OBSERVING AND PHOTOGRAPHING ANIMALS

By

Fred W. Koontz, Research Student  
National Zoological Park, Washington, D.C.

When conducting animal research, it is necessary to use methods that ensure that the investigator's presence does not affect the results by altering the animal's behavior. Observational studies of exotic species are often quite difficult since many are highly excitable and easily disturbed. Even less excitable species that can often be habituated to an observer's presence, may become easily disturbed at certain critical times such as during estrus or parturition. Therefore, researchers have devised numerous methods of observing animals that minimize disturbance. These methods include the use of one-way mirrors, blinds with peep holes, observer camouflage suits and video cameras with remote monitors. For a review see Hutt and Hutt (1970) and Lerner (1979). Unfortunately, these methods are generally expensive or impractical in a zoo environment.

The National Zoological Park maintains a colony of rufous elephant shrews, Elephantulus rufescenes. We are currently investigating various aspects of their reproductive and social behavior. Our research requires direct observation of these small, nervous, easily disturbed mammals during twilight conditions. The animals are maintained "off-display" in enclosures of various types and sizes, but all with plexiglass windows on one side. Observing through one-way mirrors is not suitable because the shrews react to their reflected images. Video cameras are expensive and have poor optical characteristics at low light levels. Viewing through peep holes in blinds increases observer fatigue and a blind cannot be easily moved from enclosure to enclosure on a daily basis. Therefore, it was necessary to devise an alternative to these traditional methods for secretly observing small captive animals.

We solved this problem by using commercially available painted "sun screen murals". These painted screens are marketed for use on the windows of vans, cars, recreational vehicles and motor homes. The screens are designed so that the operator and the passengers can look out through the screens, but people on the outside cannot see into the vehicle. This is made possible by painting a plastic screen (usually with a picture of a nature scene!) on one side. This causes sunlight to be reflected so that only the screen "picture" is seen when viewed from the painted side. The unpainted side remains transparent like a normal screen. We used Sun Screen Graphics (available from Allen Group, Inc., Carson, CA 90745) which are sold at automotive and custom van shops. A 17" x 22" screen costs about \$6.00. Less expensive normal screening material can be painted on one side, however the commercially available prepainted screens are made of a soft plastic fabric that has the optimal mesh size to work most effectively as a one-way screen.

On each shrew unit a screen was attached to the outside of the plexiglass window using double-sided tape so that the painted picture side of the screen faced the interior of the enclosure. Lights were placed inside the unit and positioned above and at a slight angle towards the screen.

## INEXPENSIVE ONE-WAY SCREEN FOR ANIMAL OBSERVATION, continued

The lighting level in the room that housed the holding units was kept at a minimum. Thus, when a screen was in place, the animals could not see out (they only saw the painted picture) but we were able to observe elephant shrews at very close range without affecting their behavior.

The screens have also been used for close-up, available light (without a flash) photography. We were able to photograph an elephant shrew birth by shooting directly through the screen with a fast color slide film. K-Mart stores sell a fast (ASA 640) tungsten-balanced color slide film that is ideal for this application. The exposure of the camera must be set with the diaphragm open wide enough to minimize the "depth of field", so that the screen will be invisible in the photograph.

The painted screen murals have other possible uses for biologists and zoo personnel. For example, the standard field blind would benefit greatly by replacing the small peep holes with a larger screen mural window. Sometimes zoo curators feel they must remove animals from display by covering their exhibit windows at certain critical times, such as shortly after a birth, to minimize visitor disturbance. Unfortunately, while this policy is to the benefit of the animals, it is to the detriment of the zoo visitor. However, if the enclosure and building lighting are appropriate, a screen mural window could be temporarily attached to the unit's window so that the animals could have the needed additional privacy without their removal from public display.

These commercially available screens should be considered whenever a relatively inexpensive and convenient one-way screen is necessary for animal observations.

### References

Hutt, S.J., and C. Hutt (Eds), 1970. Direct observation and measurement of behavior. Springfield, Ill.: Charles C. Thomas.

Lehner, P., 1979. Handbook of ethological methods. New York, NY.: Garland STPM Press.



## **Keeper's Alert**

Two 24-hour conservation hotlines have recently been established to provide up-to-date information from Washington concerning conservation and environment.

The Izaak Walton League Hotline, (703) 522-5848, deals with a wide range of topics and is changed at least once a week - usually on Thursday - to give in-depth, three-minute reports on what the league sees as the current conservation issues.

The Sierra Club Conservation Hotline, (202) 547-5550, updates its report as necessary - usually twice a week, but it has been updated as often as twice daily during particularly active legislative sessions.

Both hotlines include suggestions on what you can do to help influence the outcome of crucial issues.

---Sports Afieled  
December 1981

# ELEPHANT SET

## ESTABLISHING YOUNG AFRICAN ELEPHANTS AT THE ABILENE ZOO

By  
Bill Hunt, Zoo Keeper  
Abilene Zoo, Abilene, TX



A pair of two-year-old African elephants, Loxodonta africans, was transported from a wild herd to a zoo setting in careful steps, with the result that they are functionally manageable within six months after capture.

Just before Thanksgiving, 1981, two young African elephants, named Ahmed and Tanya, arrived at the Abilene (Texas) Zoological Gardens, climaxing a painstaking process of gradual adjustment for the two-year-old animals. In selecting African elephants for the zoo, the Abilene Zoological Society and Zoo Administration chose to challenge the conventional wisdom that African elephants are difficult to manage. An elaborate plan, requiring the cooperation of many people, was evolved to meet the needs of the situation.

In late June of 1981, Ahmed and Tanya were captured in Zimbabwe (previously Rhodesia) as part of a management program in one of the national game parks there. The elephants' range is being steadily restricted by expanding human population and increasing agricultural land use. In addition, the reserves can only support a given stable population of animals, especially elephants. Officials, therefore, periodically cull the herds of adults, and tranquilize the orphaned young for sale to animal dealers and ultimately to authorized zoos and animal parks. Our elephants were part of a group of two males and six females that were flown to New York via Amsterdam, after a short stay in South Africa. Delivery by air minimized the stress and weight loss associated with long trips by ship.

The group of eight baby elephants were met in New York by Allen Campbell, an experienced elephant trainer employed by the Greater Baton Rouge Zoo in Louisiana, who was acting as agent for Abilene Zoological Gardens. With an eye toward future breeding potential, Allen selected a sexual pair, based on general condition, confirmation and likely tusk formation. The two elephants were then transported to Baton Rouge arriving 23 September for a period of "basic training".

During the first three weeks at Baton Rouge, Allen concentrated on giving Ahmed and Tanya plenty of attention. "They were scared babies," he says, "taken from their herd, crated, handled and carried to a strange place." He got them accustomed to hand-feeding and just to his presence. Tanya liked to suck on his hand, and Ahmed backed into him, while being careful to protect his face and delicate trunk.

Having accepted the trainer's presence, the young elephants were given learning tasks during the second three weeks. Allen began chaining them in their quarters at night, and teaching them to pick up their feet one at a time. This skill provides safety for the keeper at the time of chaining, and assures the elephant's cooperation during veterinary care of the feet.

## Establishing Young African Elephants, continued

With several persons to encourage the elephants and keep them in place, he began to walk them in tandem. Tanya was chosen to lead because she was more secure and because wild African females usually assume leadership in the herd. She was taught to carry her trunk up, to discourage sniffing or swatting objects and persons as she walks. Ahmed was taught to hang onto Tanya's tail with his trunk, and to carry his tail high. These little flourishes, Allen says, help the elephant to keep his mind on what he is doing.

The last two weeks were devoted to reinforcing previous lessons, and to training the elephants to lie down. This latter routine may not be essential with animals only four feet tall, but when they reach full size, it will insure their accessibility for care and handling. During this period, Abilene Zoological Gardens senior elephant keeper, Mark Fox, and zoo supervisor Mike Higgins, flew to Baton Rouge several times to participate in the handling routines and to learn the techniques and philosophy in their training. In this way the elephants were assured of consistent management, a factor judged essential to their sense of security and to the success of their training.

At the end of eight weeks, the young elephants were considered manageable and stable enough to be transported to Abilene, a distance of 600 miles. When they were brought off the truck, Ahmed and Tanya were met by familiar persons and led through practiced routines. They were walked through strange surroundings past groups of excited spectators, Tanya leading, with her little trunk curled up in front. Ahmed followed with his trunk twisted about Tanya's tail, his own tail held high. Allen, Mark and Mike walked beside them, holding onto their large ears and quietly speaking encouragement.

Summarizing his philosophy of elephant handling, Allen says, "Asian elephants need a boss, but Africans need a friend." Not only is striking the animal rarely done, but even careless actions or irritable commands which may interfere with an elephant's full performance are avoided. Firmness, however, and consistency of commands and action are important, since an African elephant is more likely to react negatively to unskillful management. It is essential that rapport and mutual respect be established between handler and animal because of the obvious superiority in strength of the elephant.

One technique that has paid off well in rapport is the late-night visit as is done in Baton Rouge. Each evening one of the elephant keepers comes in between ten o'clock and midnight to spend an hour with the young elephants. The keeper provides fresh water, cleans up, and most importantly "socializes" with the animals. Otherwise, as Allen has commented, these highly intelligent and social animals would be chained for about fifteen hours straight without seeing anyone and with nothing to do but eat, sleep, or develop inappropriate behaviors. The late-night visit helps keep the elephants' feet in good condition and encourages better response to the keepers.

The transition from Asian to African elephants represents a major move toward fulfilling objectives of the new Abilene Zoological Gardens' Development Plan. Guided by that document, the zoo will comparatively exhibit animals from similar habitats of Africa and the Southwestern United States. As the new Abilene Zoological Gardens unfolds, patrons will be encouraged to learn about the habitat requirements of threatened wild animals, and not merely be amused by a haphazard collection of creatures.

## Establishing Young African Elephants, continued

As of this writing, 18 December, 1981, the elephant staff are pleased with Ahmed and Tanya's condition and behavior. Both are gaining weight and responding well to their handlers. When weather permits, the elephants are walked daily through the zoo, now with only two keepers to direct them. Tanya, the more secure and responsive of the pair, will lie down at voice command. Ahmed, who is perhaps a younger animal, is more easily stressed, and because he is less active, requires more foot care. But he follows Tanya's lead, and in the presence of strangers moves closer to the familiar humans who are his handlers. Based on their experience to date, these men express confidence that trust and responsiveness will continue to grow between the young elephants and themselves, even when the animals have attained their full stature. In short, all those involved with Ahmed and Tanya feel that the extra planning and attention has been well worthwhile.



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## Wildlife Research.....

### New Program to Save Brazilian Monkeys

The Wildlife Preservation Trust International has received a grant of \$20,000 from the Merck Family Fund to support an on-site captive breeding program for three highly endangered species of Brazilian primates.

This project will be undertaken at the Rio de Janeiro Primate Center (CPRJ) under the supervision of its director, Dr. Ademar F. Coimbra-Filho. The CPRJ is the foremost breeding center for Brazilian primates, and has breeding colonies of eight different Brazilian primate species.

This grant will support the establishment and expansion of breeding colonies for three marmoset species, the buff-headed marmoset (Callithrix flaviceps), the buffy-tufted ear marmoset (Callithrix aurita), and Geoffroy's white-faced marmoset (Callithrix geoffroyi).

Only 2% of the original Atlantic forest region of Brazil remains, and thirteen of the 17 primate taxa of this region are considered highly endangered. Of these three species, only one breeding colony exists for Callithrix flaviceps; no colonies currently exist for Callithrix aurita.

The Wildlife Preservation Trust is an international non-profit organization dedicated to the support of captive breeding of endangered species. In this capacity they support breeding programs, field surveys, rescue missions, reintroduction programs, research and education in the area of endangered species and wildlife conservation.

*Submitted by Karen Starr Wakeland, Coordinator for International Affairs*

# Great Ape *Academonium*



## STUDY OF CHIMPANZEE (*Pan troglodytes*) BEHAVIOR AT SEDGWICK COUNTY ZOO

By  
Bonnie Henderson, Zookeeper  
Sedgwick County Zoo, Wichita, KS

The Sedgwick County Zoo, in conjunction with the Midwest Animal Behavior Institute (MABI), our research affiliate at Wichita State University, has embarked on a research project concerning chimpanzees (*Pan troglodytes*). We are recording behavioral observations on our chimps prior to moving them to a new ape exhibit which will open in the spring of 1982. The subjects are three 11-year-old chimps - one male and two females. "Marbles" our male, and "Harriet" and "Audra" were all obtained by the zoo at about the age of one and have been in the present exhibit since their arrival.

The frequency of sixteen defined behaviors, such as aggression, climbing and sexual contact, are recorded. Observations are done in fifteen consecutive one-minute intervals. The majority of observations are done by area keepers in their spare time.

The main purpose of the study is to determine general behavioral changes which occur after they are moved. Also, a sexually experienced male will be introduced to the group and it will be interesting to note specific changes in behavior.



## Information Please

The 1982 Inventory of Live Reptiles and Amphibians in North American Collections is in the final planning stages. If you maintain a collection of live reptiles and/or amphibians, please respond with the following information current as of 1 January, 1982:

- (1) A complete inventory of your herpetological collection. Include numbers of male/female/unknown sex for each species.
- (2) A complete list of all species which were bred in your collection during 1981.
- (3) A complete list of all species which have bred in your collection over the years which you feel to be significant. Put emphasis on first breedings in captivity and rare or difficult-to-breed species. If this information was listed in an earlier inventory it need not be listed again.

If your new inventory will not be completed and in by March 1st, please update last year's inventory with pencil and mail it as soon as possible. Information cannot be included after the final deadline of 3/1/82. Send information to: Frank L. Slavens, P.O. Box 30744, Seattle, WA 98103.



By  
Dr. Graham Crawshaw  
Assiniboine Park Zoo  
Winnipeg, Manitoba, Canada

Zoo animals are affected by various groups of parasites which, under certain circumstances, can cause clinical disease and even death. Broadly, parasites can be classified as either external or internal. The internal parasites are usually more serious although most animals can carry a limited parasitic burden without being affected.

The most common of the various groups of internal parasites in zoo animals are the roundworms and the coccidia. Nearly all the internal parasites go through a life cycle, part of which occurs outside of the host.

As part of their reproductive cycle most nematodes lay eggs within the host's body. These eggs are passed out with the feces, hatch in the ground releasing an immature parasite or larva. These larva must undergo further development before they are able to reinfect the host or another individual. The worms are acquired by eating food contaminated with infective larvae.

In some cases development of the worms cannot take place without the involvement of a second or intermediate host, often an invertebrate. This occurs more commonly with some of the other groups of parasites such as the tapeworm and flukes. In a captive situation, lack of a suitable intermediate host usually prevents the occurrence of these parasites.

The coccidia are protozoa; single-celled animals that cause disease in a wide range of mammalian and avian species both in the wild and in captivity. Like the nematodes, part of their life cycle takes place outside the host but there is also an internal phase in which they invade cells of the intestinal tract.

There are several other types of protozoal parasites occurring within the intestine. These are often part of the normal intestinal flora but may become pathogenic, that is, cause disease if the normal balance is disturbed. Other protozoa are found in the blood and various tissues but are rarely a cause of disease in a zoo situation.

The external parasites include lice, fleas, ticks and mites. Only under certain conditions do they become numerous enough to be a problem.

There are a number of factors which determine whether a particular animal will be affected by parasites. These include the level of environmental contamination by parasite eggs, the prevailing conditions of temperature and moisture which will affect the survival of those eggs, and the host's resistance.

An animal's resistance varies with age, genetic make-up, nutritional status and immunity. Generally speaking, young animals are much more susceptible to infection, while the presence of a limited number of parasites in an adult induces a state of immunity to infection by more parasites. Young animals have not had the chance to acquire this resistance, or premunition as it is known.

## Zoo Parasites And Their Control, *continued*

Parasites cause disease in a number of ways, -depending on their species and location. The most significant of the internal parasites, the gastrointestinal helminths or worms, usually but not invariably cause diarrhea with subsequent weight loss, anemia and weakness.

The diagnosis of parasite infections is based on clinical and postmortem findings, and the examination of the feces for the presence of eggs or larvae. The number of eggs seen in a fecal sample is not always proportionate to the number of adult parasites and will vary with the species of parasite and the time of year.

The control of parasitic infections involves the use of antiparasitic drugs (anthelmintics in the case of helminths) and the prevention of re-infection. Modern anthelmintics are effective and safe, but none is capable of removing 100% of parasites or preventing infection.

The prevention of infection by pasture rotation is an important aspect of parasite control on a farm but can rarely be employed in a zoo situation. The removal of feces from an enclosure will reduce significantly the level of contamination, as will cleaning and disinfecting washable surfaces. Some parasite eggs, particularly the ascarids, are extremely resistant and can only reliably be destroyed by burning or strong chemicals. For this reason, even repeated treatments fail to remove the parasite load from adult animals, which soon reinfect themselves.

The excessive use of anthelmintics, however, can produce such a parasite-free population that the animals lack the acquired immunity and will be very susceptible to infection, should this occur. The main purpose in treating adult animals with low parasite burdens is to reduce environmental contamination, particularly for young stock.

*(Zoo Parasites and Their Control is reprinted from "Animal Matters", the monthly zoo news paper produced by the keepers at Assiniboine Park Zoo in Winnipeg, Canada. The preceding article was excerpted from Volume I, Numbers 1 & II with permission of the editor)*



## Publications Available

Fisheries and Wildlife Research -- 1980, the research activities of the U.S. Fish and Wildlife Service during 1980 have been summarized in this publication. This annual report highlights research activities at the Service's 12 major laboratories, 50 cooperative fish or wildlife research units located at 31 universities, and various field stations. Single copies are available in limited supply from the Publications Unit, U.S. Fish and Wildlife Service, Dept. of the Interior, Washington, D.C. 20240.

"Endangered Means There's Still Time.", an overview of the efforts being made to save such species as the Key deer and brown pelican along with a comprehensive explanation of the Endangered Species Act, are highlighted in this 32-page, illustrated brochure available for \$2.50 from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402 (specify stock # 024-010-00526-2)

# Exhibit Options

## Birds Acquire Work of Art At National Zoological Park

Years of dreaming, months of planning, miles of cable, tons of fiber-glass, and weeks of dawn-to-dusk work are needed to make a tree. And that's just what the Office of Graphics and Exhibits, Office of Facilities Management, and the Department of Ornithology did.

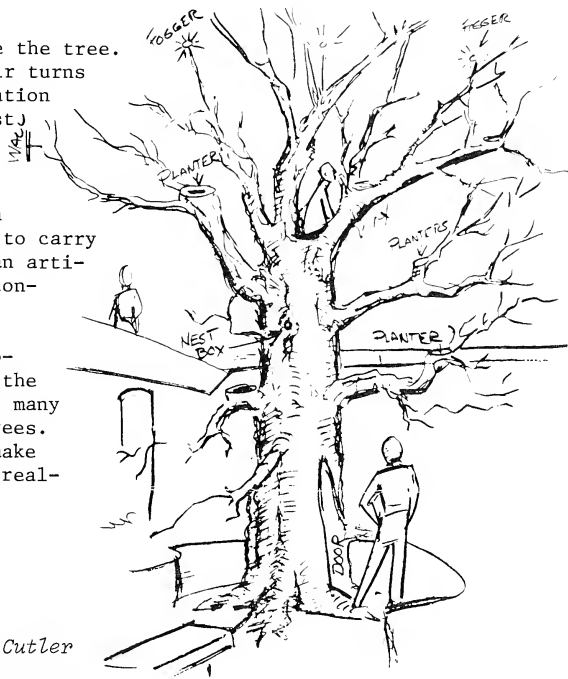
With the outstanding talents of local sculptor William Klapp, the tree for the Indoor Flight Exhibit in the Bird House was completed on September 25, 1981. The tree contains ingenious methods of disguising nest boxes, planters, and a misting system to raise the humidity level for plants and birds in the exhibit. Keepers have access all the way to the treetop by ladder from inside the hollow trunk.

So far the tree has been planted with Boston fern, spider plants, rhipsalis, Swedish ivy, philodendron, golden pathos, bird's nest fern, bromeliads, creeping figs, bleeding heart vines, kangaroo vine and Spanish moss.

Once the area around the tree is finished, more tropical vines such as queen's wreath, cissus, tetraigma, allamanda and bouganvillea will be planted to grow up and provide perching and nesting places for the birds. In two or three years, the tree should take on the appearance of a centuries old forest monarch covered with tropical hanging plants and epiphytes.

The birds already love the tree. They've all taken their turns using it as an observation tower and place to rest. More specifically, the crested quail doves are using it as a roost and the sun bitterns have started to carry sticks and mud up to an artificial cork nest box constructed for them.

Completion of this project is an example of the cooperative efforts of many Zoo offices and employees. All those who helped make the sculptured tree a reality are heartily congratulated.



*Illustration by Warren Cutler*

From TIGERTALK, newsletter of the National Zoological Park and Smithsonian Institution, Washington, D.C., November 1981. Ilene Ackerman, Editor.

# Book Review



## Diets For Birds In Captivity

By Kenton C. Lint & Alice Marie Lint  
Published by Blandford Books Ltd.,  
Poole, Dorset, U.K., 1981  
Distributed by Sterling Publishing  
Co., Inc.

Review by Joanna Cox  
Keeper, Ft. Worth Zoo

Diets For Birds in Captivity, a book by Kenton Lint, past Curator of Birds at the San Diego Zoo, appears, at first glance, to be a quick, convenient manual of recipes for bird diets. More careful examination of this book reveals that this format is misleading, and that recipes are only half the wealth of compact information that this book has to offer.

Each taxonomic order represents a chapter. To find a sample diet for a particular bird, simply look up the order, then family, and the diet for adults, and many times a specialized diet for rearing chicks, stands out for easy reference. However, the real find lies in the initial paragraphs heading the chapters which contains information on range, identifying characteristics of the order, native habitat, and wild diet. There is also included such husbandry information as courting behavior, size of eggs and number per clutch, incubation time, and typical parental care. This information does not stand out at first glance, but must be patiently gleaned with a thorough reading.

Even less obvious is the information contained in the appendices. This information is well worth the effort of finding and reviewing. Appendix I contains a large percentage, though not a complete listing, of the commercial foods mentioned in the body of the text. It is in this appendix that these foods are presented qualitatively and quantitatively as to percent of protein, fat, fiber, etc. and the ingredients. Appendix II presents propagation methods for the live food items mentioned in the body of the book. The keeper concerned with analyzing the Lint and Lint diets should start with these appendices, as much of this information is contained within, although tenacity is needed to extract it.

The cost of \$50.00 is quite prohibitive for a recipe book, but for the individual who intends to read "Diets" thoroughly from cover to cover, the total body of information contained here may well be worth the cost.



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### INFORMATION PLEASE!

Information is requested from anyone having knowledge of combat dances of male snakes. Especially needed are some slides or photos of this behavioral act. Any information or help would be greatly appreciated. Please contact: Ryan D. Magnus, Dept. of Zoology, University of South Dakota, Vermillion, SD 57069.

# *An Encouraging Word.....*

## Good News About Wildlife In 1981

By

Megan Durham

FWS, Department of the Interior

A happy ending for a "widowed" bald eagle, a promising beginning for young sea turtles, and a successful journey for some endangered geese are just a few of the "good news" stories that happened to fish and wildlife in 1981.

---A rare black-footed ferret, the Nation's most endangered mammal, was discovered in Wyoming, and FWS researchers studying it have since observed two more ferrets in the same vicinity. The ferrets are the first to be positively located in the wild since the early 1970's.

---A female bald eagle in New York whose mate was shot last year got a new family, with some help from wildlife biologists. First she found a new mate--a male eagle that had been transplanted from Minnesota and released at Montezuma National Wildlife Refuge in 1977. Then, because the female was too contaminated with pesticide residues to produce her own young, wildlife biologists put two eagle chicks into the new pair's nest. The chicks were reared successfully and will help to increase bald eagle numbers in New York State.

---For the first time ever, two injured manatees were successfully released to the wild in Florida after being rehabilitated in captivity. One of the large, docile "sea cows" was injured when she became entangled in a crab trap line, which wrapped tightly around her flippers. She was treated at Sea World and released with her calf, which was uninjured but had remained with its mother throughout the ordeal. Another female manatee that apparently had been struck by a boat was rehabilitated by two other private groups, Marineland and Homosassa Springs. The oceanaria and park groups rescue injured manatees, an endangered species, under an arrangement with the Fish and Wildlife Service.

---On the Hawaiian island of Kauai, a wildlife biologist turned air traffic controller in a research experiment to prevent young night-flying seabirds from crashing into brightly lighted areas. By putting shields on outdoor lights that were confusing the birds--a threatened species called the Newell's Manx shearwater--he succeeded in reducing the number of crashes by 28 per cent. And at aid stations established to collect downed birds, members of the public turned in hundreds of the shearwaters, most of which were saved and released to fly another day.

---About 2,000 endangered Kemp's Ridley sea turtle eggs were moved by the Fish and Wildlife Service and the Mexican Fisheries Department from a Mexican nesting beach to Padre Island National Seashore, where biologists are trying to establish a second, protected nesting beach. So that the little turtles would become "imprinted" on Padre Island, they were allowed to hatch and make their way to the ocean before they were captured again and transported to a National Marine Fisheries Service facility in Galves-

## GOOD NEWS ABOUT WILDLIFE IN 1981, continued

ton, TX. They will be raised in captivity until they are about 1 year old, when they will be large enough to have a good chance of surviving in the wild. The sea turtles will then be released in Gulf waters, and it is hoped they will return eventually to Padre Island to nest.

---Scores of endangered Aleutian Canada geese that were raised in captivity in the Lower 48 states were transplanted to Alaska's Aleutian Islands and are now migrating successfully with wild birds to wintering grounds in California. In all, more than 2,600 Aleutian Canada geese have been counted on their wintering ground, up from a low of 800 in 1975.

---A record 530 Atlantic salmon returned to the Connecticut River to spawn. The young from the 1.2 million eggs produced by these highly prized game fish will be reared at State and Federal fish hatcheries and released into the river to help rebuild the fishery. Salmon disappeared from the Connecticut 100 years ago after dams blocked the migration of adult salmon to their spawning grounds. The effort to restore the salmon in the Northeastern United States began in 1967 and involved the Fish and Wildlife Service, the States of Connecticut, Massachusetts, New Hampshire and Vermont and the Commerce Department's National Marine Fisheries Service, and two private power companies.

---As a result of recovery efforts for the severely endangered Puerto Rican parrot, a record number of nine parrot chicks were produced and survived in the wild this year. Two more chicks were produced in captivity, one of which was placed in a nest and survived to join the wild flock. This year's success brings the total number of Puerto Rican parrots to 29 in the wild and 15 in captivity.

---Service research biologists reported that eggshell thickness and reproduction are improving in eagles, osprey, and brown pelicans, and that the numbers of sharp-shinned hawks and Cooper's hawks are increasing dramatically. Researchers now agree that DDE, a persistent breakdown of DDT, was responsible for eggshell thinning, reproductive failures, and population declines in the bird populations.

---American shad spawned naturally in the Susquehanna River for the first time in 150 years. The spawning followed the release of 1,165 adult shad in the river in May 1981 by the Pennsylvania Fish Commission and the Fish and Wildlife Service. The two agencies are collaborating with other State and Federal agencies and five power companies to restore the Susquehanna's historic shad fishery.

"Every year, hundreds of activities that benefit fish and wildlife are carried out by management professionals in State and Federal Wildlife agencies," summarized Robert A. Jantzen, director of the U.S. Fish and Wildlife Service. "Many private individuals, organizations, and businesses are also doing a great deal to help conserve and restore wildlife. Although the public seldom hears about these individual success stories, each one is a contribution to a healthy future for America's fish and wildlife."



# Legislative News

*Compiled by Kevin Conway*

## ENDANGERED SPECIES ACT REAUTHORIZATION DUE THIS YEAR

The Endangered Species Act (ESA), which was made a public law in 1973, is due for reauthorization in 1982. Feelings run hot and cold over the intent and the success of the ESA since it became law; a number of conservation organizations support it while some government agencies (U.S. Army Corp of Engineers) wish they had never heard of it. Oversight hearings on the ESA were held last December by the Environmental Pollution Subcommittee of the Senate Environment and Public Works Committee (See following article) and feelings continue to run high over the continued existence of the Act.

This year the American Association of Zookeepers should make every effort to let their government and congressional leaders know how important we think the Endangered Species Act is. Individual AAZK members should write their congressional representatives in the House and Senate to express their desire for reauthorization of the ESA. AAZK Chapters have an even greater potential for affecting the reauthorization. Chapters should consider some means of making their zoo visitors aware of the Endangered Species Act, its significance and the significance of reauthorization. The Fish and Wildlife Service of the U.S. Department of the Interior should be contacted for any pamphlets or material it may have on ESA. These pamphlets or brochures would be very effective in reminding the zoo visitor of the reauthorization after they have left the zoo.

If the conservation community sits back quietly this year, the ESA could be significantly altered or abolished under the present administration. The opportunity presents itself for ourselves as individuals and as the American Association of Zookeepers to make ourselves heard on a matter of substance. Throughout this year, I will strive to keep our members updated on the progress of the ESA reauthorization. If everyone who is a member of AAZK were to write their congressional representative in support of the ESA it would be a very persuasive argument; remember this is an election year.

*---Kevin Conway  
Legislative Coordinator*

## HEARINGS BEGIN ON ENDANGERED SPECIES ACT DUE FOR RENEWAL IN 1982

On December 8 and 10, the Environmental Pollution Subcommittee of the Senate Environment and Public Works Committee held oversight hearings on the federal Endangered Species Act (ESA).

### Day 1

Subcommittee chairman Sen John Chaffee (R.I.) opened the session with a quote from Undersecretary of State James Buckley: "We are still too ignorant of ultimate consequences to understand in full the urgent need to protect even the most inconspicuous forms of life so that we do not diminish the rich variety of biological resources that continue to exist. Nevertheless, the urgency is there, and we need to impress upon the public consciousness that extinction is an act of awesome finality."

## LEGISLATIVE NEWS, *Continued*

Patrick Parenteau of the National Wildlife Federation (NWF) stressed that "the disappearance of species caused by human activities adversely affects the world's food supply, human health, and our ability to conduct scientific research, and may ultimately interfere with man's own survival."

NWF listed some of the Act's positive aspects: 1) endangered species habitat acquisition gains, 2) many state-federal cooperative management agreements, and 3) protection of species threatened by federal projects via the consultation process with the Fish and Wildlife Service (FWS). "Even the most controversial projects--Tellico Dam, Beaufort Sea oil and gas leases, the Cheyenne Water Project, Grayrocks Dam--have either been constructed or allowed to proceed," stated Parenteau. "To date, the consultation process has provided the channel through which even the most difficult conflicts have been resolved." Federation testimony stressed the Act's successes, its need for greater funding, and need to continue protecting all life forms (including plants and invertebrates) and listing species in need of protection.

Lonnie Williamson of the Wildlife Mangement Institute urged continued critical habitat designation. "Protecting and improving habitat is the most basic and important management action required to perpetuate and restore endangered species populations. Without it, our efforts are futile."

Problems with the Administration's implementation and funding of the Act were discussed. William Stevenson of the National Marine Fisheries Service asserted that "effective endangered species legislation is necessary to preserve our genetic heritage, but this preservation can be undermined by insufficient funds." Parenteau pointed out that the elimination of FY82 Section 6 grants to states "represents a serious setback, specifically eliminating 199 state personnel who implement and enforce the ESA."

James Glass, President of the Wildlife Legislative Fund of America, testified on the importance U.S. sportsmen place on the ESA. "Sportsmen have been the most vocal supporters of programs to ensure the survival and well-being of legitimate endangered wildlife," he claimed. Glass noted the important funding sportsmen provide for wildlife management and that hunting is not endangering wildlife.

Another concern brought up was the Interior Department's halt to listing new species and actions to de-list or reclassify several species. FWS Director Robert Jantzen, accompanied by Ron Lambertson, testified for the Administration. Lambertson indicated that the Administration plans to give priority to mammals and birds rather than "lower life forms." Sen. Chaffee responded: "If we don't have the 'lower life forms' which form the base of the food chain, then we won't have the upper level species either."

Sen. Chaffee told Administration witnesses that "time is the best indicator of the success of an act. We don't feel any need to change the ESA, so the weight of the proof is on you." Sen. George Mitchell (ME) added: "This is an important act. It serves a valuable national purpose, small perhaps in our large technological society, but all the more important therefore."

### Day 2

Again Sen. Chaffee opened with a Buckley quote: "By permitting high rates of extinction to continue, we are limiting the potential growth of biological knowledge. In essence, the process is tantamount to book-burning; but is even worse in that it involves books yet to be deciphered and read."



## LEGISLATIVE NEWS, continued

Dr. James Tate testified for the Western Regional Council, which represents 50 western industrial companies. He criticized the Act, saying that it "does not currently allow sufficient flexibility so that concerned parties can participate in mitigation and management of impacts on endangered species." He and Craig Bell, Western States Water Council Executive Director, complained that the Act unduly interferes with western water use. Ken Berlin of the National Audubon Society disagreed, stating "there are not examples in FWS Region 6 (the principal western region) of the Section 7 consultation process either unduly delaying or stopping a project. FWS data have not identified a single western water project stopped by the Act." "Rather than raising undue costs to society," he continued, "the ESA has succeeded remarkably well in protecting the environment without seriously disrupting economic activity."

Mike Bean of the Environmental Defense Fund urged listing all endangered life forms when he noted that "the opportunities for material advances in medicine, agriculture, industry and science are likely to be secured, if not more likely, through the preservation of the less familiar life forms as through the preservation of the better known."

A panel of scientists, including Dr. Edward Wilson of Harvard, Dr. Thomas Eisner of Cornell, and Yale's Dr. Stephen Kellert, attested to the scientific value of endangered species. Dr. Peter Raven, Director of the Missouri Botanical Garden, concluded: "The richest country in the world simply cannot afford to let natural resources disappear one-by-one through lack of attention or because of the imperative of short-term gain. Once they are gone, we can never get them back."

---Conservation Report  
National Wildlife Federation

## REVIEW OF INFORMATION CONCERNING THE RACCOON DOG

The U.S. Fish and Wildlife Service is reviewing available biological and economic information on the raccoon dog (*Nyctereutes procyonoides*) for possible addition to the list of injurious wildlife under the Lacey Act. Importation and introduction of this species into the natural ecosystem of the United States appears to pose a threat to native wildlife species. Listing the raccoon dog as an injurious species would prohibit its importation into, or its transportation between, the United States and any territory or possession of the United States with limited exceptions. This notice seeks comments from the public to aid in determining if a proposed rule is warranted. At the present time, importation of this species into North America is not restricted.

Comments may be mailed to Chief, Division of Wildlife Management, Mail Code 355, U.S. Fish and Wildlife Service, 1717 H Street, NW, Room 512, Washington, D.C. 20240. For further information contact: James F. Gillett, Chief, Division of Wildlife Management, (202) 632-7463. While the comment period officially closed on 15 January, information, if pertinent to the review, can be accepted after that date.

--Federal Register  
December 1, 1981



# ZOO News From Japan

By  
Yoshi. Yonetani  
ZooDEL/Zoo Design & Education Lab  
Kobe, Japan

Every year, the Japan Zoo and Aquarium Association grants Breeding Awards to its member institutions that have bred animals for the first time in Japan with the babies surviving for more than six months. I introduce the institutions and the animal for which they received the award at this time. The total official winning commendation was 20 institutions and 42 species. There were 15 species of mammals - births (Natural Breeding: 12, Artificial Breeding: 3); 19 species of birds (NB: 10, AB: 8, Artificial Fertilization: 1 for Japanese Crane), 1 species of reptile (NB), 1 species of amphibian (NB), and 6 species of fish (NB).

## MAMMALS

- \*Muroran Aquarium, Muroran; Hokkaido  
Zenigata Seal (*Phoca kurilensis*)
- \*Tama Zoological Park, Tokyo  
Japanese Hare (Tohoku-North East type)  
Afghan Pika
- \*Nogeyama Zoo, Yokohama  
Dhole  
B & W Ruffed Lemur (*L.v. variegatus*)
- \*Japan Monkey Centre  
Red-bellied Tamarin  
Francois' Lutong
- \*Tennoji Zoo, Osaka  
Paca
- \*World Safari, Shirahama  
Himalayan Tahr  
Red-necked Wallaby
- \*Takarazuka Zoo, Takarazuka  
Springbok  
Red-tailed Coati
- \*Asa Zoological Park, Hiroshima  
Two-spotted Palm Civet (winner both NB & AB)
- \*Okinawa Zoo, Okinawa  
Orii Fruit Bat (*Pteropus dasyrallus inopinatus*)

## BIRDS

- \*Asahiyama Zoo, Asahikawa; Hokkaido  
Feathered-toed Scops Owl
- \*Obihiro Zoo, Obihiro; Hokkaido  
Yezo Ural Owl
- \*Yagiyama Zoological Park, Sendai  
Magellan Goose
- \*Ueno Zoo, Tokyo  
Rock-hopper Penguin
- \*Tama Zoological Park, Tokyo  
Wattled Crane  
Japanese Crane (an important case of artificial insemination)  
Cape Barren Goose

## 1981 First Breeding Awards In Japan, continued

### BIRDS (continued)

- \*Nogeyama Zoo, Yokohama
  - Crested Tinamou
  - Green-backed Grand Guan
  - Lesser Whistling Duck
- \*Higashiyama Zoo, Nagoya
  - (Eastern) Rosella Parakeet
  - Bourke's Parakeet-Night Parrot
  - Turquoise Grass Parakeet
- \*Kyoto Zoo, Kyoto
  - Palawan Peacock Pheasant
- \*Tennoji Zoo, Osaka
  - Red-billed Whistling Duck
- \*Oji Zoo, Kobe
  - Greater Flamingo
- \*Takarazuka Zoo, Takarazuka
  - Zebra Dove
- \*Phoenix Zoo, Miyazaki; Kyushu
  - Indian Wood Stork
- \*Okinawa Zoo, Okinawa
  - Victoria Crowned Pigeon

### REPTILE

- \*Takarazuka Zoo, Takarazuka
  - Reticulated Python

### AMPHIBIAN

- \*Asa Zoological Park, Hiroshima
  - Japanese Giant Salamander

### FISH

- \*Tokai University Aquarium, Shizuoka Pref.
  - Amphiprion laticlavus
  - Premnas biaculeatus
- \*Marine Palace, Oita Pref.
  - Epinephelus fasciatus
  - Seriola aureovittata
  - Inimicus japonicus
- \*Okinawa Aquarium, Okinawa
  - Amphiprion perideraion



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## Reptile Amphibian Potpourri

### SIXTH REPTILE SYMPOSIUM ON CAPTIVE PROPAGATION AND HUSBANDRY

July 28-31, 1982

National Zoological Park

CALL FOR PAPERS -- All herpetologists are invited to submit for consideration the titles of papers they wish to present at the 6th Reptile Symposium on Captive Propagation and Husbandry. Paper lengths may range from 15 to 40 minutes. A preliminary program will be established by April, 1982. Speakers will be expected to submit a 100-150 word abstract of their talk by 30 April, 1982; a completed copy-ready manuscript must be submitted prior to the Symposium.

Submit all program information to: Thomas A. Huff, Program Chairperson, Reptile Breeding Foundation, PO Box 1450, Picton, Ontario K0K 2T0 Canada; (613) 476-3351, 476-3691. Symposium Coordinator is: Dr. Martin Rosenberg, Department of Biology, Case Western Reserve University, Cleveland, OH 44106; (216) 368-2755, 368-3558. 451-1081. Host Committee Chairperson is: Bela Demetar, Department of Herpetology, the National Zoological Park, Washington, D.C. 20008; (202) 357-1300. Symposium Series Director is: Richard A. Hahn, Zoological Consortium, Inc., 13019 Catocin Furnace Rd., Thurmont, MD 21788; (301) 662-0328.

## TROPICAL HABITATS WORKSHOP

Sponsored by Topeka Chapter AAZK  
May 7-8, 1982  
At World Famous Topeka Zoo

The workshop will involve talks about tropical habitat exhibits from the aquarium-sized exhibit to the whole-building concept; the problems/solutions of successfully maintaining these types of exhibits; animals in tropical habitats; horticultural hints; and more.

Panel discussions, a tour of Topeka's Tropical Rain Forest and a plant exchange will also highlight the workshop. Anyone wishing to give a presentation about tropical habitats in their zoo, please contact:

Connie Cloak, Chairman  
Topeka Zoo  
635 Gage Blvd.  
Topeka, KS 66606  
(913) 272-5821

The registration fee is \$10.00 per person. It includes an ice-breaker party Thursday night, coffee breaks, and a dinner Friday night. Those presenting papers

will be exempted from a registration fee. Please register as soon as possible. Checks should be made payable to "Topeka AAZK".

Illustration by Greg Volpert

### Tropical Habitats Workshop Registration Form

Name/Position \_\_\_\_\_

Institution \_\_\_\_\_

Home Address \_\_\_\_\_ Phone \_\_\_\_\_

( ) I would like to register for the workshop. (\$10.00 per person)

( ) I will present a paper on (Title/Summary) \_\_\_\_\_

( ) I will need this equipment \_\_\_\_\_

( ) I would like more information about the workshop.

Accommodations are available with Topeka AAZK Chapter members.

( ) I would like accommodations for \_\_\_\_\_ number of people.

( ) I will stay at one of the motels in the Topeka area.

### AAZK T-SHIRTS AVAILABLE

AAZK T-shirts with the official emblem are now available. The price is \$5.49 plus \$1.00 for shipping and handling. Sizes Small, Medium and Large are available in tan, red, lemon yellow and royal blue. Size Extra-Large is available in tan and royal blue only. To order, please complete the coupon below and send with a check or money order to: Carleton Bailie, 1426 Geneva, Akron, OH 44314.

Please send \_\_\_\_ T-shirt(s) at \$5.49 plus \$1.00 shipping and handling.

Size: \_\_\_\_ small \_\_\_\_ medium \_\_\_\_ large \_\_\_\_ extra-large

Colors: \_\_\_\_ Tan \_\_\_\_ Red \_\_\_\_ Lemon yellow \_\_\_\_ Royal blue

Name: \_\_\_\_\_ Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

### AAZK ACCESSORIES AVAILABLE

Decals: The official AAZK decal is available through the Memphis Zoo Chapter. The decal is a black and white reproduction of the AAZK rhino logo, suitable for any smooth, hard surface, especially a car window. Cost is \$1.50 complete, prepaid. Make checks payable to the Memphis Chapter, AAZK and send directly to Mike Maybry, Decal Project Coordinator, 1887 Crump Ave., Memphis, TN 38107.

Buttons: For a "Keepers Care" Button, send the coupon and 50¢ to: Larry Sammarco, Lincoln Park Zoo, 2200 N. Cannon Drive, Chicago, IL 60614.

Please send \_\_\_\_ button(s) for 50¢ each.

Name: \_\_\_\_\_

Address: \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Pins And Charms: Enameled three-quarter inch pins and charms with the official AAZK logo are now available. They are done in the same colors as the AAZK Patch and the charms are suitable for necklaces (you provide the chain). The price per pin or charm is \$3.50 which includes postage. To order send your name, complete mailing address, number of pins or charms desired to: AAZK National, 635 Gage Blvd., Topeka, Ks 66606. Make check or money order payable to AAZK National.



*We are indebted to the AAZPA Newsletter for allowing us to reprint portions of this section from their "Positions Available" listing. This is a monthly service to us, for you.*

SUP./ANIMAL SERVICES...under direction, to schedule, assign and supervise personnel. Requires ability to establish and maintain effective working relationships with zoo staff and general public. Combination equivalent to graduation from high school and three years' experience in care of variety of animals is required. Salary \$11,520-\$12,108. This position is with the Lafayette Park Zoo, Norfolk, VA. Applications will be closed fifteen days after posting in the AAZPA Newsletter. Contact: Director of Personnel, City of Norfolk, East Wing City Hall, Norfolk, VA 23501.

CURATOR/BIRDS...requires extensive experience in management of captive birds and their exhibition. Individual must design and implement captive propagation programs, possess public speaking ability and have some supervisory experience. Degree in Biology, Zoology or closely related field, plus two years' experience preferably in zoological park required. Salary \$20,00-\$24,000, plus benefits. Send resume and references to: William Dennler, Director, Toledo Zoological Gardens, 2700 Broadway, Toledo, OH 43609.

ASST. SUPT./MAMMALS...requires at least five years' progressively responsible experience in zoo work and thorough knowledge of exotic mammal husbandry. Should have knowledge and experience of personnel management and supervision; a degree is desirable. Salary \$12,972-\$19,552, plus benefits. Send resume to: Russell Smith, General Curator, San Antonio Zoo and Aquarium, 3903 N. St. Mary's St., San Antonio, TX 78212.

EDUCATION CURATOR...responsible for management and administration of education department at Pt. Defiance Zoo and Aquarium. Four years' progressively responsible experience in exhibit facility or school system required, and possess four-year degree from accredited university in education or related field. An equivalent combination of experience and academic training will be considered. Salary \$20,964-\$29,733. Closing date 28 February 1982. Contact: Andy Grovins, Park Dist. Personnel, Metropolitan Park District, 10 Idaho St., Tacoma, WA 98409

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MOVING?

PLEASE SEND ADDRESS CHANGES TO:

Dolly Clark, Administrative Secretary  
American Association of Zookeepers  
635 Gage Blvd.  
Topeka, KS 66606

## AAZK MEMBERSHIP APPLICATION

Name \_\_\_\_\_ Check here if renewal [ ]

Address \_\_\_\_\_

\_\_\_\_\_ \$20.00 Professional Full-time Keepers only and International Members  
\_\_\_\_\_ \$10.00 Associate Individuals not connected with an animal care facility  
\_\_\_\_\_ \$15.00 Affiliate Other staff and volunteers  
\_\_\_\_\_ \$50.00 Contributing Organizations and individuals

U.S. CURRENCY ONLY PLEASE

Directory Information \_\_\_\_\_

Zoo \_\_\_\_\_ Work Area \_\_\_\_\_ Special interests \_\_\_\_\_

Mail this application and check or money order, payable to American Association of Zoo Keepers, to: AAZK National Headquarters, Topeka Zoo, 635 Gage Blvd., Topeka, KS 66606.

Memberships include subscription to the *Animal Keepers' Forum*.

The membership card is good for free admission to many zoos and aquariums in the U.S. and Canada.



### INFORMATION FOR CONTRIBUTORS

*Animal Keepers' Forum* publishes original papers and news items of interest to the Animal Keeping profession. Non-members are welcome to submit articles.

Articles should be typed or hand-printed. All illustrations, graphs and tables should be clearly marked, in final form, and should fit in a page size of no more than 6" x 10" (15 cm. x 25½ cm.). Literature used should be cited in the text and in final bibliography. Avoid footnotes. Include scientific names.

Articles sent to *Animal Keepers' Forum* will be reviewed for publication. No commitment is made to the author, but an effort will be made to publish articles as soon as possible. Those longer than three pages will be separated into monthly installments at the discretion of the editorial staff. The editors reserve the right to edit material without consultation unless approval is requested in writing by the author. Materials submitted will not be returned unless accompanied by a stamped, self-addressed envelope.

Telephoned contributions on late-breaking news or last minute insertions are acceptable. However, phone-in contributions of long articles will not be accepted. The phone number is 913 272-5821.

DEADLINE FOR EACH EDITION IS THE 15TH OF THE PRECEDING MONTH.

*Articles printed do not necessarily reflect the opinions of the Animal Keepers' Forum editorial staff or of the American Association of Zoo Keepers.*

Items in the publication may be reprinted. Credit to this publication is requested. Order reprints from the Editor.

**American Association  
of Zoo Keepers  
Topeka Zoological Park  
635 Gage Blvd.  
Topeka, KS 66606**

***Second Class***  
Postage Paid At Topeka





A black and white line drawing of two giraffes and a man. The man, wearing a short-sleeved button-down shirt and trousers, stands behind the two giraffes. One giraffe is in the foreground, facing right, and the other is slightly behind it, also facing right. A third giraffe is partially visible behind the first one. The giraffes have a distinctive spotted pattern. The man's hands are on his hips. The signature 'Jhalap' is visible near the bottom of the first giraffe's legs.

# Animal Keepers' Forum

*Dedicated to Professional Animal Care*

MARCH 1982

Executive Editor: Mike Coker  
 Managing Editor: Susan Chan  
 Associate Editor: Connie Cloak  
 Editorial Assistant: Diana Brey

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*The delightful drawing for the cover of this month's issue is entitled "Giraffes and Keeper" and was drawn by Shelly Carpenter of Tempe, Arizona. Thanks, Shelly!*

# Scoops and Scuttlebutt

## FIRST CALL FOR 1982 AAZK NATIONAL CONFERENCE PAPERS

The Metro Toronto Zoo AAZK Chapter has issued a first call for papers to be presented at the 1982 National AAZK Conference to be held Oct. 3-7 in Toronto. Deadline for submission of outline or abstracts is 15 July, 1982. Further information and suggested topics are listed on Page 55 of this issue of AKF.

## K.A.L.-----DON'T LEAVE HOME WITHOUT IT!

The Keeper Accomodation List now records 19 states, the District of Columbia and Ontario, Canada with 32 zoological institutions having K.A.L. contact persons. So if you're traveling and are in need of overnight accomodations etc., use the K.A.L. It was established for your benefit. For more information write: Keeper Accomodation List, c/o AAZK Metro Toronto Zoo, P.O. Box 280, West Hill, Ontario M1E 4R5, Canada.

## 1981 FRESNO CONFERENCE PROCEEDINGS AVAILABLE

A limited number of copies of the Special Edition of AKF which includes the proceedings from the 1981 Fresno AAZK Nation Conference are still available from National Headquarters. The 84-page issue includes an overview of the Board of Directors meetings, 18 papers presented during the conference and a complete index for the 12 issues of the Forum published during 1981. To order a copy, send your name and complete mailing address along with a check or money order made out to AAZK to: AAZK National Headquarters, 635 Gage Blvd., Topeka, KS 66606. Cost: \$5.00.

## 'PIECE OF YOUR ZOO' PROJECT REALLY MOVIN' ON

The 'Have a Piece of Your Zoo at National Headquarters' project has really taken off! The bulletin board now displays the patches, buttons, decals and/or bumper stickers of 28 institutions. Those zoos who have sent material so far are: Pittsburgh Zoo, Dickerson Park Zoo, Metro Toronto Zoo, Atlanta Zoo, Oklahoma City Zoo, Jackson Zoological Park, Arizona Zoological Society, Reptilien Zoo (Garmisch-Partenkirchen), National Zoological Park, Erie Zoological Society, Gladys Porter Zoo, Sacramento Zoo, Chicago Zoological Scoeity, El Paso Zoo, Australian Society of Zoo Keepers, San Diego Zoo, Sea World, Ft. Worth Zoo, Topeka Zoo, Ringling Brothers and Barnum & Bailey Circus, Potawatomi Park Zoo, Dallas Zoo, Fresno Zoo, Los Angeles Zoo, Akron Zoological Park, Santa Ana Zoo, Knoxville Zoo and Minnesota Zoological Garden. If you don't see your zoo's name above, how about sending us a "Piece" of your Zoo for our National Hdqts. Board?

# Births & Hatchings

## JANUARY BIRTHS AT SAN ANTONIO ZOO.....Cindy Roger

The San Antonio Zoo is pleased to announce the following births and hatchings for the month of January 1982. The Bird Department hatched 5 Black-necked swans and 1 Arrow-marked Babbler. The Aquarium hatched 10 African Lyretail Cichlids. The Large Mammal Department produced 0.1 Gelda Baboon, 0.1 Lesser Kudu, 0.1 Lady Grey's Waterbuck and 1.0 Thomson's Gazelle.

## METRO TORONTO ZOO ANNOUNCES RECENT BIRTHS

### Ring-tailed Lemur Births.....Vanessa Phelan

Eight ring-tail lemurs were born at M.T.Z. last spring. The two sets of twins and four single births were all sired by one male, "Barbarino". The sex ratio of the babies is 5.3 and they all thrived from birth. The mothers (with the exception of one female with twins who was moved to a holding area off site) transferred the babies back and forth continually, suckling them all in turn. They made a wonderful exhibit group during the summer months.

### More Hamadryas Births at M.T.Z.....Vanessa Phelan

With a total lack of regard for the population explosion, the M.T.Z. gang has produced another seven babies since April 1981. Out of this number 3.2 have survived. Two more births are expected before the end of February '82. This brings the total to 26 (12.14). The new "kids" range in age from 9 months to two months and have all shown an acceleration in development over previous years. All of them, with the exception of two, have been off "mum" within 14-25 days and definitely chewing on solid food before 30 days. Two of the infants, "Eligah" and "Linda" are second generation M.T.Z. from the mothers and "Eligah" appears to be also second generation from the father. It seems that "Larry", our six-year-old male (the oldest, "Jude", is about 12) has successfully stolen three of "Jude's" daughters. Of these three females, one has already given birth the second is pregnant, and number three has yet to be in estrous. "Larry" shows a protective and possessive interest in "Eligah", now three months old, and kidnaps him for short periods of time during the day. He is, unfortunately, a little rough with the baby, but has not caused any harm. If the group has indeed divided itself into a two male unit, it happened quietly and without any apparent fighting. "Larry" still plays a subordinate role in his relationship with "Jude".

### Siberian Tiger Cubs Born at M.T.Z.....Christine Genovese

Our breeding female Siberian tiger "Amba" gave birth to 1.2 healthy cubs on 21 October, 1981. The cubs have been named "Yuki", "Tosha" and "Mila". "Amba", also born at Metro Toronto Zoo on 14 June, 1974, is an excellent mother and is presently caring very well for her third litter. These cubs represent a third generation of Siberian tigers at our zoo. Their grand-dam, "Pjassina", who is 17-years-old, is also a part of our collection. Introduction of the cubs to the public took place on 29 November, 1981.

# Coming Events

## SOUTHEASTERN AVICULTURISTS ASSOCIATION ALABAMA GAMEBIRD ASSOCIATION FIRST ANNUAL CONFERENCE

April 3, 4, 1982

Jackson, Mississippi

Featured speaker at the conference will be Mr. Mike Lubbock of the Wildfowl Trust of England. This meeting is open to all interested parties. For additional information, please contact James L. Swigert, Jackson Zoological Park, 2918 West Capitol Street, Jackson, MS 39209.

## NORTH AMERICAN SYMPOSIUM: CHEMICAL IMMOBILIZATION OF WILDLIFE

April 4-6, 1982

Milwaukee, Wisconsin

For symposium program and registration information, write or call: Leon Nielsen, Wisconsin Humane Society, 4151 N. Humboldt Ave., Milwaukee, WI 53212. (414) 961-0310.

## FIFTH ANNUAL INTERNATIONAL WILDLIFE FILM FESTIVAL

April 16-18, 1982

Missoula, Montana

The Film Festival will be held at the University of Montana. Deadline for film entries is 19 March 1982. For further information write or call: Wildlife Film Festival, Wildlife Biology Program, University of Montana, Missoula, MT 59812. (406) 243-5272.

## AAZPA GREAT LAKES REGIONAL CONFERENCE

April 18-20

Columbus, Ohio

## RAPTOR MEDICINE AND REHABILITATION WORKSHOP

April 24, 1982

Indianapolis Zoo

The Workshop will run from 9 a.m. to 6 p.m. and will feature guest speaker Dr. Pat Redig, College of Veterinary Medicine, University of Minnesota. Includes Diagnostic Procedures, Anesthesia, Surgery, Medicine and more. Registration fee of \$25.00 includes lunch. Registration deadline is April 10, 1982. For further information, please write to Indianapolis Zoo, Education Dept., 3120 30th St., Indianapolis, IN 46218.

## AAZPA CENTRAL REGIONAL CONFERENCE

May 2-4, 1982

El Paso, Texas

## TROPICAL HABITATS WORKSHOP

May 7-8, 1982

Topeka, Kansas

The Workshop will include talks on tropical habitats, problems/solutions for maintaining these types of exhibits, horticultural hints etc. Registration fee of \$10.00 includes icebreaker, coffee breaks and one dinner. Interested persons should contact Connie Cloak, Topeka Zoo, 635 Gage Blvd., Topeka, KS 66606. Accommodations are available with Topeka AAZK members.

# *Letters To The Editor*

To the Editor:

I noted the AAZK Fresno Conference presentation of Paul Barkman, which was subsequently committed to print in the December 1981 edition of Forum, under the title "Training an Elephant for Zoo Life." I wish to submit the following facts as an informational supplement to Mr. Barkman's short treatise.

The first paragraph, under the subheading "Why train elephants for captivity?", although generally applicable with regard to the management of Asian cows, loses a considerable degree of validity when applied to the management of Asian bulls of breeding age. Bulls, from pubescence onwards, experience a phenomenon of varying periodicity known as "musth". Cows, on the other hand, don't. During a musth period, Asian bulls become unmanageable. Should a keeper or trainer attempt to directly handle an Asian bull in musth, a very high probability exists that said keeper or trainer will be seriously injured or killed. Even in the forestry camps of Thailand, where Asian bulls have been employed in logging operations for centuries and where human injury or death is essentially accepted as one of the risks of the business, bulls in musth are considered too dangerous to handle; thus, they are chained to trees and ignored for the duration of the musth period.

Unfortunately, Mr. Barkman fails to consider this phenomenon, and appears to suggest that ANY elephant, if properly trained, can thereafter be, among other things, "...handled and moved at any time." An overwhelming body of evidence testifies that such is not the case. And while it is true that bulls may be "rebroken," or retrained in order to facilitate direct handling after the conclusion of the musth period, no evidence exists to support Mr. Barkman's claim (third paragraph) that "...with handleable elephants, it becomes easier to breed them." In point of fact, the weight of current evidence with regard to the reproductive behavior of Asian bulls contradicts this position.

Proceeding to the subsections entitled "The beginning" and "My philosophy of training," I feel obliged to point out that Mr. Barkman completely failed to mention that the young bull, Thong-trii, was removed from his mother at eighteen months of age, broken, and fully trained by Washington Park Zoo staff prior to his delivery to Mr. Barkman. During the three-month training period at WPZ, Thong-trii learned a number of behaviors; among them: foot up, trunk up, kneel, stretch out, come, back up, come around, and walking with a single human. Moreover, portions of the training sessions were documented both photographically and by videotape for future reference. By the time Thong-trii left WPZ, he executed all behaviors at vocal command. It appears, then, that an additional period of from one to five weeks was required to convince Thong-trii to execute said behaviors at the command of a total stranger (in this case, Mr. Barkman).

Further, I feel obliged to mention that although a rather large number of Asian elephant births have occurred at WPZ, all members of our elephant management team were of the opinion that Thong-trii appeared to be an exceptionally intelligent young elephant, and an unusually adept pupil. Since elephants vary from individual to individual, it appears likely that a similar training program, undergone at a similar age by another calf, may require implementation of a somewhat extended timeframe in

## LETTER TO THE EDITOR, (continued)

order to elicit similarly successful results. In addition, it must be remembered that although the considerable time and effort employed in rendering the young bull manageable appear to have met with success at this point, such success as has been achieved will be negated as the bull matures and the behavioral and physiological effects of successive musth cycles intensify.

Thus, if Thong-trii is to be kept for breeding purposes, the importance of a facility capable of allowing him to be maintained in good health without necessitating direct handling cannot be overemphasized. I would further suggest that institutions committed to the preservation and captive propagation of Asian elephants might best serve those interests by direct consultation with those having experience in this area.

Finally, there is one comparatively minor point which may well be addressed: Mr. Barkman also takes credit for "training" elephants to use water; stating that "Most captive elephants don't utilize water in their exhibits because they have never been taught how." While this may apply to single elephants who have lived alone all of their lives and who are therefore behaviorally abnormal, I do not believe this to be usual. Our elephants take full advantage of both of their pools, although lacking the benefit of "professional training." On the other hand, they haven't mastered the backstroke...

Jay Haight  
Asian Elephant Keeper  
Washington Park Zoo  
Portland, Oregon

(Editor's Note: While we have not, in the past, had many "Letters to the Editor" regarding articles that have appeared in AKF, we certainly welcome comments from our members. As stated in the "Information for Contributors" section, the articles which appear in AKF do not necessarily express the beliefs or opinions of either AKF or AAZK but are published as a means of disseminating information. If you have comments or concerns you would like to express, feel free to write a letter to the editor. We are dedicated to being a truly open forum for idea and information exchange, and this can only help to serve and promote our goals. S.C.)



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## Information Please

Information wanted: Need laboratory normals and/or data on mammals, birds, reptiles etc. I am trying to accumulate information for a veterinary clinic and for my personal education. Also, please suggest referential literature. Send to: Joyce Turner, 2870 Stout Rd., Cincinnati, OH 45239.

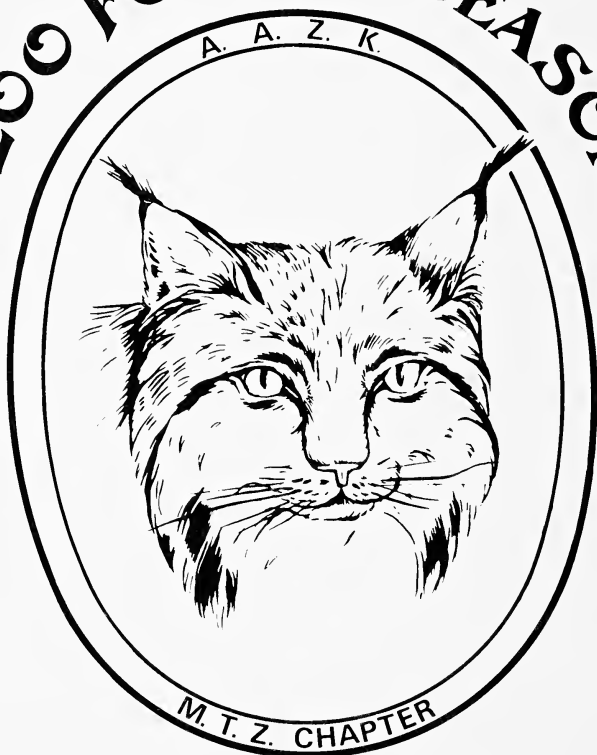
Information is requested on the management and breeding of Markhor (Capra falconeri sp.) in captivity. Diets, exhibit descriptions and breeding data (birth dates, breeding season, age of first birth etc.) all would be appreciated. Please specify subspecies in zoos. Send information to: S.D. Pearce, Animal Keeper, Los Angeles Zoo, 5333 Zoo Drive, Los Angeles, CA 90027.

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SPRING      SUMMER      AUTUMN      WINTER  
ANCIENT ASTRONOMERS SYMBOLS

**A ZOO FOR ALL SEASONS**



**A.A.Z.K.  
NATIONAL CONFERENCE  
OCT. 3-7 1982  
CHELSEA INN, TORONTO, CANADA**  
CONFERENCE COORDINATOR: FRANCES TURNER



# Conference.....82

## FIRST CALL FOR PAPERS

Papers are requested for the 1982 AAZK National Conference. The number of papers will be limited. Suggested topics are: Climate as a formative factor in

- a. The art of Zoo Keeping (eg. husbandry techniques under climate extremes.)
- b. Exhibit Design
- c. Zoo Architecture
- d. Visitor Enjoyment
- e. Seasonal animal management (eg. breeding, nutrition, holding)
- f. Pest Control

Climatic factors could include temperature (heat,cold), snow, ice, wind, humidity, rains, etc.; also temperature controlled houses such as tropical houses.

Papers will be limited to 20 minutes each with an additional 5 minutes for questions. Please submit an outline or abstract by 15 July, 1982. The registration fee for the conference will be reduced for those people whose papers are accepted for presentation. Send papers to: Fran Turner, AAZK Conference Coordinator, Metro Toronto Zoo, P.O. Box 280, West Hill, Ontario M1E 4R5 Canada.

### Why You Should Come To Toronto For The National Conference

Toronto, a large clean city on Lake Ontario in Southern Ontario, is your venue for the 1982 AAZK National Conference. The theme for the conference, to be held Oct. 3-7, is "A Zoo For All Seasons." We are hoping by this time the fall colors should be at their height and most of the animals well on their way to getting a good coat for winter.

A 1½ hour drive from Niagra Falls, Buffalo Zoo and Marineland, Toronto is a two hour drive from the Reptile Breeding Foundation at Picton and the Petersborough Zoo. In and around Toronto there are many attractions. The Royal Ontario Museum will have re-opened after extensive renovations. It is Canada's largest and finest museum. The Ontario Science Centre and the C.N. Towers, the world's tallest free-standing structure, are musts for every visitor. Our numerous restaurants offer some of the finest cuisine to be found in the world. China Town and St. Lawrence Market sell a variety of delicacies for the gourmet.

The Chelsea Inn, our Conference headquarters, is a large hotel in the heart of downtown Toronto, close to all the nightlife, shops and our excellent extensive public transit systems. Our icebreaker will be held in Sparkles, a club at the top of the CN Tower. The banquet and auction is booked in Casa Loma, an historic castle in Toronto. If finances are a problem, don't forget that U.S. currency is worth 20% more in Canada!

The Metro Toronto Zoo, opened in August 1974, is a half-hour from downtown. Built on 710 acres, it has a collection of nearly 400 species. Metro Toronto Zoo has already had several notable births including Lowland gorilla, African elephant and Grey-cheeked hornbill. Our keepers and guides will be proud to show you around our zoo.

It is too early for us to book and plan field trips, but we are always on the lookout for new ideas. We look forward to seeing you at the first AAZK Conference north of the border. Further information will appear in AKF throughout this coming year.



## *Bird Calls*

### HAND-REARING SPARKLING VIOLET-EARED HUMMINGBIRDS AT BROOKFIELD ZOO

By  
Lucy Gemlo, Senior Keeper  
Bird Department

It is Brookfield Zoo's policy to justify hand-rearing of avian species given two particular circumstances. When increased productivity is desired, nesting pairs are stimulated to lay a second clutch by removing the first for hand-rearing. Secondly, eggs and/or offspring are rescued when threatened by the disruption of normal parental care. The latter case governed the decision to hand-rear two Sparkling Violet-eared Hummingbirds (Colibri coruscans).

Numerous private individuals and institutions have successfully propagated hummingbirds in captivity. A handful have assisted orphaned chicks to self-sufficiency. To our knowledge, the feat of hand-rearing a newly hatched Trochilid had yet to be achieved.

At Brookfield, hummingbirds have been displayed intermittently throughout the zoo's 47-year history. In November 1979, a pair of Sparkling Violet-eared Hummingbirds were added to a mixed species exhibit in the Perching Bird House. This species, currently uncommon in captivity, has been known to reproduce in confinement.

Remaining true to their native South American breeding season, the pair courted and two clutches of eggs were laid in the months of January and February 1980. These proved to be infertile. The following December, the female built another nest, laying eggs on the 16th and 18th. She incubated this fertile clutch faithfully until 29 December when the nest was discovered in disarray and the eggs abandoned. After candling established that they were still viable, the eggs were immediately transferred to a 97.5°F incubator with a wet bulb reading of 80.0°F.

Anticipating the hatch of these eggs, we found ourselves in an emotional quandry. We were excited by the prospects of our first captive-born Trochilids in years. At the same time we dreaded the awesome task of hand-rearing such tiny creatures.

The eggs hatched January 3rd and 4th. The chicks, about the same size as a newborn mouse, were already distinguished from each other by the amount of down on their backs. Transferred to a 95°F brooding incubator, they were placed in a jewelry ring box for their nest. Bedding consisted of cotton-wrapped in tissue to prevent the chicks from becoming snared in the cotton fibers. Humidity was maintained at approximately 75%. At night the ring box was placed in an eight-ounce plastic container which in turn was placed in a shallow pan of water to deter ants from gaining access to the nest.

The diet consisted of a nectar solution and fruit flies. The nectar ingredients were: 1 cup cold water, 2 tablespoons honey, 2 drops baby vitamins and 1/8 teaspoon powdered protein (a). This protein was gradually increased to 1 teaspoon over several days. The solution was kept refrigerated and blended fresh three times daily to avoid spoilage. The fruit flies served twofold as an additional source of protein and as a roughage component.

For dispensing the nectar solution, a number 5 French infant feeding tube (b), cut to a length of 1 inch, was found to fit neatly on the end of a polyethylene pipet (c). The tip of the tube was smoothed by the heat of a lighted match. Its extreme flexibility made the tubing very suitable for the delicate tissues it would contact. The pipet was superior to others tested because of the bulb's greater sensitivity. For the initial feeding of fruit flies, several 1½-inch pieces of tubing were cut and the ends similarly finished. A pair of fine, blunt-tipped tweezers were obtained for feeding the flies once the chicks grew larger. All feeding equipment was stored in a cold sterilization solution (d) when not in use. Also, a jeweler's loupe (e) with 2½ power magnification was acquired to aid in properly guiding the food-bearing tubes to the chicks' crops.

Feeding commenced upon transfer to the brooder incubator and continued on the half hour from 0700 hrs. to 1900 hrs. A portion of the nectar solution was drawn into the pipet apparatus and held under warm running water until it tested lukewarm on the wrist. Initially the wings were removed from the fruit flies to make them as small as possible. Then the flies were pressed onto the tips of the individual tubes, one fly per tube.

Donning the jeweler's loupe, the keeper removed the ring box from the incubator and placed it under a heat lamp to keep the chicks warm while feeding. Responding to the movement of their nest, the chicks gaped. One had to move quickly to feed them before they tired from the exertion of begging. Nectar was administered by guiding the tube with one hand down the right side of the chicks' mouth into the crop. The end of the tube was easily visible through the transparent tissues. Then the other hand gently pressed the pipet bulb to swell the crop with nectar. Fruit flies were fed by guiding the individual tubes one at a time down to the crop. As the chicks grew and ate more flies, the forceps were utilized. By gently placing the flies, wings intact at this point, in the back of the mouth, the chicks were able to swallow them. Occasionally, one chick tired while the other was being fed, so it was attended to first at the next meal.

At first the chicks begged modestly lifting only their heads. As they gained strength, they sat upright supported by their legs and strained to hold their gaping mouths as high as possible.

Food intake was recorded at each meal. Although the amount of nectar was not quantified, a visually-determined volume in the crop was always maintained. Fruit fly consumption per bird averaged 8 on the first day and 24, 57, 73, 102, and 120 on successive days.

The first two days were extremely nerve-racking. We feared injuring the chicks with the tubes, misdirecting food into the trachea, and overfeeding them. Surprisingly, the chicks seemed very tolerant of the feeding methods employed and when stronger would even thrust themselves onto the tubes once placed in their mouths. As for the trachea, its diminutive size did not present a problem. The esophagus dominated the oral cavity and one could even see into the crop. With regard to overfeeding, we have since observed a parent-fed hummingbird with a crop twice the size of our chicks' crops.

Handling of the chicks was minimal -- usually once a day to change the nest material. On 9 January, they were weighed for the first time. The oldest at 7 days was 1.45 grams; the other at 6 days was 1.42 grams.

That same day the youngest showed signs of trouble. It ate normally in the morning but by midafternoon was no longer begging and passage of food from the crop was retarded. Defecation continued and appeared nor-

mal. Nectar was force-fed and tetracycline (f) was administered orally (0.025 mg) at the end of the day. However, the chick expired overnight. The next day the other chick developed similar symptoms. An antifungal drug, nystatin (g) (0.01 cc or 100 units), as well as tetracycline was given orally twice during the day along with nectar and a small number of fruit flies. Again to no avail.

Each chick was fixed in 10% formalin and sent to separate pathology laboratories for histological examination. The diagnosis of the 6-day-old chick was impaction of the intestinal tract with undigested fruit fly exoskeletons. Examination of the 8-day-old chick disclosed an ulceration of the crop epithelium that became inflamed and infected. Digestion of fruit flies appeared normal in this chick. A culture of the fruit flies detected *Candida*, a common fungus that often infects birds. However, no evidence of *Candida* was found in either chick.

Subsequent observation of a parent-reared nestling revealed differences in development from the hand-reared hummingbirds. At 8-days-old, the hand-reared chick's eyes were beginning to open and the roots of the pin feathers could be discerned beneath the skin. At the same age, the parent-reared chick was 2 times larger, its eyes were completely open and the pin feathers were well erupted.

Should conditions necessitate hand-rearing again, we would modify our procedures in the following ways. A dose of parent hummingbird droppings would be included in the diet to normalize the gut flora and to possibly prevent microbial infection of the gastrointestinal tract. Nectar consumption would be increased while restricting the number of fruit flies. Feeding intervals would be lengthened to 45 minutes.

Despite having lost the chicks, we feel our initial attempt met with some success. We not only sustained them for one week, but they grew and showed signs of development. We would encourage others to try it as well should nature dictate human intervention. The materials needed are inexpensive and easy to obtain. Once the fear of feeding them is overcome, it is relatively simple. They are amazingly resilient having tolerated far more than we expected. The process nonetheless is physically and emotionally draining. But each day of success inspires hope that one day hand-rearing, if necessary, may be a helpful tool for rare nectivore propagation.

Product References:

- a) Geval Protein, Lederle Laboratories Division, American Cyanamid Co., Pearl River, NY 10965.
- b) Barbic Feeding Tube #1732, Bard Hospital Division, C.R. Bard, Inc., Murry Hill, NJ 07974.
- c) Pipet #P5214-10, Scientific Products, Division of American Hospital Supply Corp., McGaw Park, IL 60085.
- d) Nolvasen, Fort Dodge Laboratories, Inc., Fort Dodge, IA 50501.
- e) Magni-Focuser #105, Edroy Products Co., Inc., New York, NY 10001.
- f) Panmycin, The Upjohn Company, Kalamazoo, MI 49001.
- g) Mycostatin, E.R. Squibb and Sons, Inc., Princeton, NJ 08540.

Acknowledgements

I would like to thank Ruth Wootten, exhibit attendant at the San Diego Zoo, for sharing her knowledge and experience in hand-rearing hummingbirds and Ralph Piland, Assistant Lead Keeper at Brookfield Zoo, who nursed the chicks through the first two critical days and provided invaluable support for their continued care.



MANY AMERICANS LACK BASIC KNOWLEDGE OF ANIMALS  
AND SEE MORE WILDLIFE ON TV THAN IN THE WILD, STUDY FINDS

By  
Megan Durham  
*Fish and Wildlife Service*

Most Americans don't know very much about animals or wildlife conservation issues and are more likely to see wild animals on television or in zoos than in the wild, according to a study conducted for the Interior Department's U.S. Fish and Wildlife Service.

The study, which has important implications for wildlife conservation and management programs, was conducted by Dr. Stephen Kellert of Yale University in the fall of 1978 and involved interviews with 3,107 adult Americans. Kellert reported his initial findings in 1979, and has recently published two new reports on his data.

"Dr. Kellert's study demonstrates the critical need for better communication between wildlife managers and the public," notes Ray Arnett, Assistant Secretary for Fish and Wildlife and Parks. "There appears to be a significant lack of understanding among large segments of our society about things that are of great importance to the future of wildlife conservation and management. This finding is disturbing to many wildlife professionals, including myself, because it indicates that the public is not prepared to make informed decisions about the complex wildlife problems and controversies that we will undoubtedly face in the remainder of this century."

Among Kellert's findings were the following:

--Most Americans know relatively little about animals. Although coyotes are often killed in western States to protect livestock, 75 percent of those surveyed did not know that the coyote is not an endangered species. Half of the public did not know that the statement "spiders have 10 legs" is false, and only slightly more than half knew that insects do not have backbones and that veal does not come from lamb. Seventy-five percent said they know little about ecosystems or population dynamics of wild animals.

--Fifty-eight percent of the public said they cared more about the suffering of individual animals than about species population levels. This is an important finding for wildlife managers, whose work is generally more concerned with conserving populations of animals than with the welfare of each individual of a species.

--Of all demographic variables, education was the most sensitive indicator affecting knowledge of animals. People with a graduate education knew more about animals than any other group and were more interested in wildlife and more concerned about the natural environment. People with less than a sixth grade education were almost the opposite of those with graduate education in basic perceptions and understanding of animals.

--Differences between urban and rural residents "may represent one of the most difficult and important problems confronting the wildlife management field in the 1980's," according to the study. Residents of rural areas generally know more about animals, participate in more wildlife activities, are more supportive of practical uses of animals, and are

## AMERICANS LACK BASIC KNOWLEDGE OF WILDLIFE, Continued

less concerned about "animal rights" issues than urban residents. Residents of cities with populations of more than 1 million had extremely low animal knowledge scores, and were more opposed to hunting and predator control and more concerned about humane or ethical treatment of animals than rural residents.

--There are striking regional differences in knowledge and attitudes about animals. Alaskans were the most knowledgeable, followed by residents of the Rocky Mountain States. Residents of the Northeast were the least knowledgeable. Pacific Coast residents were more concerned with ethical treatment of animals and "animal rights" issues and were opposed to hunting more often than residents of other regions. Southerners tended to be more interested than others in practical and material values of animals.

--Watching animal television shows, owning pets, and visiting zoos are Americans' most frequent animal-related activities. During the two years before they were interviewed, 78 percent had watched a wildlife television show, 67 percent had owned a pet, and 46 percent had visited a zoo.

--Twenty-five percent of the sample had hunted at some time during their lives, and 14 percent had hunted in the two years before they were interviewed. Fifty-three percent of those who had hunted at some time no longer hunt, primarily because of the lack of opportunity. Forty-three percent hunted primarily to obtain meat, 37 percent for sport or recreation, and 11 percent to be close to nature.

--Twenty-five percent said they had birdwatched in the preceding two years. Of these, 3 percent were "committed" birdwatchers who could identify more than 40 species. Contrary to the popular stereotype of the little old lady in tennis shoes, the average committed birder was a 42-year-old male.

--Forty-five percent had fished during the preceding two years. The most common reason for fishing was to eat fresh fish (28%). Twenty percent fished primarily for sport.

--Eleven percent belonged to a sportsmens' or other conservation-related organization during the preceding two years; 19 percent had used an off-road vehicle; 13 percent had backpacked; and 2 percent had trapped.



(The Kellert reports may be purchased from the National Technical Information Service, U.S. Dept. of Commerce, 5285 Port Royal Rd., Springfield, VA 22161. Their titles are "Phase II: Activities of the American Public Relating to Animals" and "Phase III: Knowledge, Affection, and Basic Attitudes Toward Animals in American Society." The first report, "Public Attitudes Toward Critical Wildlife and Natural Habitat Issues," is also available. Two additional reports will be available within the next year.



By

*Dr. Graham Crawshaw  
Assiniboine Park Zoo  
Winnipeg, Manitoba, Canada*

There are about 190 species of non-human primates. They are found predominantly in the tropical regions of Asia, Africa and the Americas. The group is very diverse, with a size range from the pygmy marmoset and the mouse lemur (weighing 60 grams or less) to the gorilla (weighing up to 275kg.).

There is no single feature uniquely shared by all primates and no single primate has all the characteristics of the order. Coat color is variable with the lower forms tending to be more colorful than the higher primates. Other body features such as the face and perineum may be brightly colored. Females of some species of Old World monkeys and apes possess specialized areas of skin which become greatly swollen and deep pink in color at times of sexual receptivity. Though principally in the perineal area, it may also be present on the tail, back, legs and head.

Puberty occurs at about one year of age in marmosets, at about three in macaques and seven in chimps. Sexual maturity is not reached until at least one year later for monkeys and up to three years later in apes. Males generally mature six months to a year after females.

The larger primates are relatively easy to maintain in captivity and many breed well. Primates are omnivorous but in some cases such as langurs, colobus and proboscis monkeys are heavily vegetarian. These species are leaf eaters and have a specialized stomach to cope with the large bulk of their diet. Other members of the Old World monkey family (*Cercopithecidae*) possess cheek pouches in which food can be stored and eaten later at leisure.

There have been important advances in the feeding of non-human primates in recent years and the development of commercial chows has reduced losses from inadequate nutrition. The most common problem in pet monkeys, and in zoos in early years, is cage paralysis, characterized by lameness, bone deformities and inability to move. The condition is due to dietary calcium deficiency and phosphorus excess often combined with a vitamin D<sub>3</sub> deficiency from eating rations containing high levels of fruit and other deficient foods. New World monkeys are generally more demanding nutritionally than Old World species. The former have a higher protein requirement (greater than 20%) and some species need higher D<sub>3</sub> levels. All primates, in common with the guinea pig and a few avian species, require an exogenous source of vitamin C since they are unable to synthesize the vitamin as most mammals do.

Historically, the most significant infectious disease has been tuberculosis. The disease is potentially devastating and any facility that houses primates must be constantly vigilant to prevent its occurrence. All monkeys and apes are susceptible, but New World monkeys tend to be more resistant than other groups. The majority of cases are caused by the human strain, with the lungs being the principal organ affected as in man.

## Diseases of Non-Human Primates, continued

Monkeys often show no evidence of the disease before suddenly becoming weak and dying. With the use of the tuberculin test and X-rays, it is now possible to screen individuals although both false positives and false negatives can occur. Treatment is rarely justified and can jeopardise healthy animals.

Salmonellosis and shigellosis are both intestinal bacterial infections that occur commonly in primate colonies. Both cause diarrhea, the most frequent ailment in non-human primates, leading to death in some cases. Both Salmonella and Shigella tend to be endemic and cause diseases during periods of stress. Treatment is by fluid replacement and antibiotics.

Various other bacteria cause a wide range of diseases including enteritis, pneumonia, wound infections and septicemia. In this zoo, tularemia has been responsible for several deaths recently, and possibly others in previous years. It had only been reported once as a naturally occurring infection in non-human primates.

A large number of viruses have been isolated from primates, some of which are associated with disease. Measles is probably the most common infection, particularly in recently imported animals, and is acquired from humans. Monkeys develop facial swelling, catarrh and pneumonia. The mortality rate may be more than 50%.

There are a variety of herpes viruses associated with non-human primates. Herpesvirus B causes the greatest concern because of the high fatality in humans (about 20 cases have occurred). The virus is carried by some Old World monkeys in which it is usually benign like Herpes simplex 1, the cause of cold sores in man. The latter virus can be fatal to some non-human primates. Another herpesvirus (T) is carried by squirrel monkeys, but will kill marmosets and owl monkeys.

Patas monkeys harbour another virus that causes simian hemorrhagic fever in macaques. The virus of human Hepatitis A can be carried by primates without any serious effects. Chimpanzees have been incriminated in most cases of human infections associated with primates.

Non-human primates have a wide range of parasites including nematodes and protozoa. Of the latter, Endameoba causes amoebic dysentery. Many wild-caught macaques are affected with mites in the lung.

The most important measure taken to protect the health of a primate colony is the quarantining of newly arrived animals. Physical exams, T.B. tests, parasite treatments and other procedures are carried out during the quarantine period to reduce the risk to other primates already in the collection.

There are a number of miscellaneous conditions affecting captive primates. Wounds from fighting are extremely common. Dental problems, bloat, poisoning and hernias also occur.

*(Diseases in Non-Human Primates is reprinted from "Animal Matters", the monthly zoo news paper produced by the keepers at Assiniboine Park Zoo in Winnipeg, Canada. The preceding article was excerpted from Volume I, Numbers III & IV with permission of the editor.)*



## SUNI ANTELOPE AT ELLEN TROUT ZOO

By  
Donna McCleney, Zoo Keeper  
Ellen Trout Zoo, Lufkin, TX

On 28 November 1979, the Ellen Trout Zoo received three 6-month-old Suni Antelope males (Nesotragus moschatus) on breeding loan from the Dallas Zoo. They were immediately popular with the public, and on 2 August 1980, a female Suni arrived from Dallas. After the female was introduced to the exhibit, the three males were allowed to establish a dominance hierarchy. The subordinant males were then transferred to a separate pen.

The female was already pregnant upon arrival. On 27 September 1980, the first Suni born at the Ellen Trout Zoo was discovered at 8:00 a.m. This baby died the following day due to a leg problem that hindered his ability to nurse.

The Suni female and dominant male were observed breeding on 30 September 1980. When it became apparent that the female was pregnant again, preparations were made by the Zoo Keepers to insure the health of the offspring. Verbal and written instructions were received from Dallas and a special nursery corral was constructed.

On 30 May 1981, the latest member of the Ellen Trout Zoo Suni Antelopes was noticed on the morning rounds. A constant watch was kept on this baby to be certain it could and did nurse. At 10:20 a.m., the baby, a male, was standing for his first observed feeding session. The second nursing attempt was made at 12:30 p.m. This time, the baby switched from nipple to nipple and there was also some head butting of the udder. At 3:20 p.m., the Suni offspring appeared to be nursing on the left side. A fourth attempt at nursing was noted at 4:35 p.m. The mother was very attentive to the baby at these times; cleaning it and stimulating it to urinate and defecate.

Hand-rearing was not necessary because the female Suni was taking care of the baby. He was observed nursing several times in the following days and was seen nibbling on grass at less than a month old.

The female, unfortunately, died on 20 July 1981 with bloat due to an impacted rumen. On the advice of the Zoo veterinarian, calf manna was added to the horse and mule feed and alfalfa pellets, the normal diet, of the remaining adult on exhibit. Despite having lost its mother, the young Suni Antelope, at four months, seems to be in good health

### REFERENCES

- Wortman, John D., "Small Antelope Management at the Dallas Zoo", Regional Proceedings of the American Association of Zoological Parks and Aquariums, Pg. 54-57, 1980.
- Wortman, John D., Bottle-rearing Suni Antelope. Personal communication, 19 February 1981.



## REQUEST FOR NOMINEES FOR AAZK AWARDS

Nominations for the Annual AAZK Awards for Excellence in Zookeeping, and the Certificate of Merit for Zoo Keeper Education are requested. Please send your nomination by June 15, 1982, to:

Mike Crocker, Awards Committee  
Dickerson Park Zoo  
Springfield, MO 65803

The Awards Committee will select the winners and present the awards at the AAZK Annual Conference, October 3-7, 1982, in Toronto, Canada.

### EXCELLENCE IN ZOO KEEPING

#### QUALIFICATIONS

1. The nominee must be a full-time Animal Keeper employed in any North American Zoological institution or Aquarium.
2. The nominee must have been employed at least two years on a permanent status at a Zoo or Aquarium
3. The nominee must be nominated by his or her peers who have also been employed at that same Zoo or Aquarium.

#### NOMINATION PROCEDURES

1. List name, position, institution, years of service in the field and the recommendation of a peer or colleague.
2. List outstanding achievements: exhibits, breeding, education, etc.
3. List any extra activities outside of Zoo or Aquarium work: working with conservation groups, youth, wildlife officials, etc.

#### SELECTION PROCEDURE

The Awards Committee, consisting of five people, will independently review each nominee.

### CERTIFICATE OF MERIT FOR ZOO KEEPER EDUCATION

#### QUALIFICATIONS

1. Any North American Zoological institution or Aquarium is eligible.
2. The keeper training program must have been in existence for at least one year.

#### NOMINATION PROCEDURES

This award will be given to the zoo most actively promoting educational programs for zoo keepers -- Keeper training courses, staff seminars, and reimbursement for formal education, etc. If you feel that your zoo merits such an award, please submit a letter of nomination, mentioning specific education programs.



# Legislative News

*Compiled by Kevin Conway*

## LEGISLATIVE WRAP-UP OF 97TH CONGRESS'S FIRST SESSION: FISH AND WILDLIFE HIGHLIGHTS

A measure to stem trade in wildlife, fish, and plants taken, possessed, bought, or sold in violation of state, federal, or international laws--stymied by a Senate committee in 1980--made it through in 1981. P.L. 97-79 combines the existing Lacey and Black Bass Acts and increases civil and criminal penalties for violators. Changes in the Marine Mammal Protection Act (P.L. 97-58) were made that extended it through fiscal 1984 (at \$32.2 million total funding), simplified return of management responsibility for resident species to states (in response to Alaskan concerns), and made technical amendments on marine mammal-fishery interactions (in response to tuna industry concerns about zero porpoise mortality requirements). A resolution (S.J. Res. 121) promoted by the National Wildlife Federation to recognize 1982 as the 200th anniversary of the selection of the bald eagle as our national symbol was signed by President Reagan on 29 December, 1981 (P.L. 97-139).

A bill creating the Bandon Marsh National Wildlife Refuge in Oregon (P.L. 97-137) was approved by the President, while one setting up Protection Island in Washington (H.R. 2241) passed the House only. However, all other fish and wildlife related proposals failed to make it beyond hearings in one chamber of the Congress. An amendment to the "Dingell-Johnson" [Federal Aid to Fish Restoration] Act (H.R. 2250) designed to raise more money for sport fishery improvement via an expanded excise tax on fishing and boating equipment bogged down in committee. (Some manufacturers oppose incorporating a 3% tax on boats, motors and trailers.) Other fisheries issues debated were decommercialization of steelhead trout (S.874), ocean fishery management, and federal grants to encourage construction of artificial reefs (H.R. 1041, H.R. 1897). A measure to expand the excise tax base of the "Pittman-Robertson" [Federal Aid to Wildlife Restoration] Act (H.R. 3429) which helps support state wildlife management and hunter education programs had one day of hearings.

Oversight hearings on wetlands and the Endangered Species Act were held in anticipation of 1982's reauthorization fight on ESA and the Clean Water Act's Section 404, which requires permits for dredging and filling in wetland areas.

*---Conservation Report  
National Wildlife Federation*

## PROPOSAL TO REMOVE THE BOBCAT FROM APPENDIX II OF CITES

A notice appeared in the Federal Register announcing the U.S. Fish and Wildlife Service has made the determination that the bobcat is inappropriately included in Appendix II and announced that it is the Service's decision to submit a proposal to remove U.S. and Canadian bobcat (Lynx rufus) from Appendix II. Information obtained from the states by the former Endangered Species Scientific Authority and FWS shows that the bobcat is not potentially threatened with extinction unless international trade is controlled and that such control also is unnecessary in order to effectively regulate international trade in other species included in CITES appendices.

*---Federal Register  
January 11, 1982*

SOME AFRICAN LEOPARDS RECLASSIFIED AS THREATENED

The Director, U.S. Fish and Wildlife Service, Department of the Interior, has issued a rulemaking which reclassifies certain African populations of the leopard as Threatened rather than Endangered. All leopard populations occurring to the south of a line running along the borders of the following countries are reclassified as Threatened: Gabon/Cameroon; Gabon/Rio Muni; Congo/Cameroon; Congo/Central African Republic; Zaire/Central African Republic; Zaire/Sudan; Uganda/Sudan; Kenya/Sudan; Ethiopia/Kenya; Kenya/Somalia.

A special rule is promulgated that allows for the importation of a sport-hunted leopard trophy legally taken anywhere in Africa south of this line under the terms and conditions imposed by the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). Since the leopard is on Appendix I of this Convention, a valid export permit from the country of origin of a trophy or a reexport certificate from any intermediate country is required, and a valid import permit must be issued by the United States Management Authority of the Convention. No Threatened species permit under the Endangered Species Act is required in this limited situation. It must be emphasized that this action applies only to sport-hunted trophies. With regard to any other transaction, all of the prohibitions of 50 CFR 17.31 still apply. In addition, it should be noted leopard populations in any area other than that determined above in Southern Africa remain on the Endangered species list, and continue to be subject to all the prohibitions of 50 CFR 17.21.

For further information contact: Mr. John L. Spinks, Jr., Chief, Office of Endangered Species, Fish and Wildlife Service, 1000 North Glebe Road, Arlington, VA 22201 (703/235-1975).

----Federal Register  
January 28, 1982

Regulatory Review of Endangered Species Act and  
Fish and Wildlife Coordination Act

One of the principal goals of the Reagan Administration has been to conduct a systematic review of all federal regulations, to examine their benefits to society as opposed to costs. On 12 August, Vice President Bush, who heads the Task Force on Regulatory Reform, announced the review of regulations pertaining to the implementation of the Endangered Species Act and the Fish and Wildlife Coordination Act.

According to the notice in the Federal Register, Vol. 46, No. 181, 18 September 1981, comments from the public were solicited through 16 October 1981. Comments submitted after that date were considered if practicable to do so. Comments regarding either of these laws were to focus their attention on: 1) needed changes in the law; 2) changes in rules; and 3) changes in management practice or personnel commitments.

---National Wildlife Federation  
Conservation Report

# Chapter

*Patti Kuntzmann  
Coordinator for Chapter Affairs*

## Philadelphia Chapter

In case you haven't heard, Philly has been chosen to host the 1983 AAZK conference. Plans are under way to make it a good one! We'll be looking forward to it!

The chapter held their elections in December. The new officers are:

President....Tom Nichols  
Vice Pres....George Lutman  
Corres/Sec...Susan Petrizzzi  
Record/Sec...Steve Cepregi  
Treasurer....Joe Meenan

During the meeting, Dave Wood showed his slides of the Fresno conference. Also, the chapter has grown by leaps and bounds. They have taken in about 14 new professional members. Good work, Philly!

## Metro Toronto Zoo Chapter

There was an election held in September '81. The officers are:

President....Oliver Claffey  
1st V.P.....Frances Turner  
2nd V.P.....Chris Parker  
Secretary....Christine Genevese  
Treasurer....Neville Pike

Of course everyone knows by now that the National AAZK Conference for 1982 will be in Toronto. The chapter is working very hard to make it a memorable experience. They are also conducting a membership drive.

In November their meeting included a lecture regarding the breeding of Australian reptiles and herptiles of Trinidad, by Hans Boos, Director of the Emperor Valley Zoo. Good luck Toronto in your endeavors!

## Riverbanks Zoo Chapter

South Carolina is really moving along. They have just started their chapter and already they have adopted a chapter logo, the Ring-tailed lemur. They have had lectures by fellow keepers on animal health and behavior, and speakers from universities and museums. Their members work with the education curator at the zoo campouts, with animal track casting, lectures and behind the scenes tours. Keep it up, Riverbanks, you're great!

## Tulsa Zoo Chapter

Tulsa held an election in August and their new officers are:

President....Steve Eric Smith  
Vice Pres....Chris Eckart  
Sec/Treas....Linda Putman

# News

The past year has been a busy one for Tulsa. A World Wildlife 'Panda Bank' was placed on display with the aid of construction work done by the exhibit shop.

For fund raising, they designed T-shirts for the Elephant Symposium and also T-shirts were sold depicting a Galapagos Tortoise. "Tulsa Zoo" was written across the top and the scientific name on the bottom.

A Valentine's day party was a minor fund-raiser, but a great time, especially due to the donated faces of their former curator Ken Kawata and their director, Dave Zuconi, for a pie throwing contest.

Lunches have been accompanied by free films from the city's library. For the public's interest, a display case was arranged showing keepers at work. It was entitled "All in a day's work".

## CHAPTER NEWS, Continued

### Miami Metrozoo

In December the chapter held a banquet instead of the usual meeting. They honored a 12-year veteran elephant keeper, Bill Doss. He received a few special gifts from the membership. This is a great idea, Miami! They also announced their new officers. They are:

President....Jean Hromadka  
Vice Pres....Kurt Mannchen  
Secretary....Rachel Rogers  
Treasurer....Patty Leon.

At the September meeting, the chapter met at one of the newest completed sections of Metrozoo. Keeper Michael Lensch, who is in charge of the area, explained his routine and how his animals adjusted to their new homes. They held a "Dog Wash" and made over \$90 in less than five hours...in the rain, yet! Great work!

In October, Dreher Park members had the monthly meeting at their zoo in West Palm Beach. They entertained Miami members with a slide show on their animals. The Miami members spent the night

at Dreher Park Zoo so that they could get an early start for the canoe trip planned for the next day. It was an all-day outing, and Jean says they were very exhausted, but totally inspired by their state's fascinating gists. Sounds like you've been busy out there in Florida! Great!

### Dickerson Park AAZK Chapter

Officers recently elected at Dickerson Park Zoo in Springfield, Mo are:

President....Mike Crocker  
Vice Pres....Terry Letterman  
Sec/Treas....Marta Hammond

### Moorpark College Chapter

Newly elected officers for the Moorpark College AAZK Chapter, Moorpark, CA are:

President....Diane Birchman  
Vice Pres....Michael G. Illig  
Sec/Tres....Mary Kay Illig  
Public Relations...Joel Hamilton



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## **Keeper's Alert**

The establishment of an international studbook on the Lion-tailed Macaque has been recently approved by the International Union of Directors of Zoological Gardens, the American Association of Zoological Parks and Aquariums and the IUCN. The studbook keeper will be Laurence Gledhill, Senior Keeper of Primates, Woodland Park Zoological Gardens, 5500 Phinney Ave. North, Seattle, WA 98103.

All institutions are urged to cooperate in the establishment and maintenance of this studbook, with any questions and/or comments being directed to Mr. Gledhill at the above address.

# Great Ape *Academonium*



## METRO TORONTO ZOO'S GORILLA BABIES: THEIR FIRST YEAR

*By*  
*Marilyn Cole and Linda Ervine*  
*Keepers, Metro Toronto Zoo*  
*Toronto, Canada*

Now that Natasha and Tabitha have passed their first birthdays, we would like to share with you some of the experiences which we have encountered since the birth of these two Lowland Gorillas at the Metro Toronto Zoo. Natasha was born on 4 November, 1980 to Samantha and Tabitha arrived two days later, after a difficult delivery, to Josephine. As our group of adults consists of two males and five females, we do not know for certain which male may have sired one or both of these infants.

We have been hand-rearing Natasha since she was twenty days old, after Samantha had grown tired of motherhood. In contrast, Josephine proved to be an excellent mother, even though she had never had the opportunity of observing a baby prior to her own, and we watched Tabitha develop into a confident toddler. However, at eight months of age, Tabitha became lethargic, lost interest in food and her surroundings, and spent her days cuddled up against her mother, taking in less and less nourishment as the days progressed. A multitude of tests could not determine the cause for this abrupt change in behavior.

Finally, on the morning of 24 July, 1981, Tabitha began to convulse, and permission was granted to take her to Sick Children's Hospital in Toronto for a CAT scan. There, two neurosurgeons diagnosed and operated immediately to remove a brain abscess. She was returned to the Metro Toronto Zoo Health Unit for post-operative care that same evening. For the first few weeks she was treated with antibiotics and given intravenous feedings, and she did very little else besides sleep most of the time. Due to the surgery, Tabitha had lost the use of her left side, and it was with great anxiety that we watched for any signs of improvement. We are pleased to report that, as of the writing of this report in December 1981, Tabitha has regained almost complete control of her faculties, and total recovery is expected to occur.

For a time after her operation, Tabitha had been equipped with a special helmet made for her by Cooper, a local sporting goods company, in order to protect her head from any injury to the large area of her brain exposed during the surgery. However, by November, Tabitha had had enough of the helmet, and learned to take it off without undoing the straps. Consequently, Tabitha is not left alone with Natasha unsupervised, and is placed in a unit with smooth sides and no protrusions when a keeper cannot be with her.

Because of the great need for Great Ape infants to feel secure, we have spent a good deal of time with these two gorilla babies acting as surrogate parents. Many of the keepers have become intimately involved with the hand-rearing of Natasha and Tabitha, sharing round-the-clock duties

for the first three months, with a gradual reduction in time as they became older and slept for longer periods at night. Being intimately involved with the hand-rearing of Natasha and Tabitha, and agonizing over every minor and major illness encountered, has occasionally made Michael Steele, Linda and Marilyn feel like the actual parents of these two members of an endangered species. After all, how different is it when one is attempting to comfort a fretting infant, who has a cold, in the middle of the night?

The past year has brought us many rewards, as well as headaches and worries, when one or the other has felt ill, has cut a tooth and fretted, or doesn't feel like eating. But now Natasha weighs 10 kg. at 13 months of age and is a virtual dynamo; Tabitha has gone through a great deal and has made remarkable recovery, weighing 10.25 kg. at 13 months of age. We look forward to the continued care of these two infant gorillas with an eventual re-introduction to the adults with whom they have visual, auditory and tactile contact every day. We also look forward to the birth of more gorilla infants in the future.

We would be pleased to answer any questions which you might have regarding our gorillas. You can write to us c/o Metro Toronto Zoo, Box 280, West Hill, Ontario, Canada.



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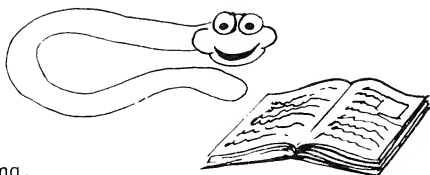
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# Book Review



## The Snake Book: Habitat, Collecting, Care and Feeding

By Roy Pinney

*Review by Mike Dee  
Los Angeles Zoo*

Not since Carl Kauffeld wrote his last book (Snakes, The Keeper and The Kept) have I enjoyed a book as much as I did this one. Roy Pinney has been interested in snakes throughout his life. I first met Roy a few years ago when he visited the Los Angeles Zoo. We discussed snake collecting and book collecting. The following year, I was able to visit Roy in New York, and we did a little snake collecting in some rattle-snake dens. Roy was very knowledgeable and it was an enjoyable experience.

The book is divided into seven chapters, the first being devoted to some of the more colorful herpetologists of the 1900s. Their short biographies are most interesting.

The remaining chapters cover physiology, snake behavior, snakes in captivity, venomous snakes, men against snakes, and opportunities in Herpetology.

Chapter 4 is by far the most interesting chapter on keeping snakes in captivity. For someone just starting a reptile collection or working in a zoo, this chapter should be a must to read. The author has gone to great lengths to compile different sources on the feeding, breeding, longevity, sexing, diseases and water needs of captive snakes. It also has a chart listing the more common snakes kept in captivity and what they eat.

This book is moderately priced (\$12.95) by today's standards. I would have liked color photos in the book, but you will have to be satisfied with the color photo on the dust jacket.

If you know a budding herpetologist, an amateur or a professional, this publication should be of great value to them.

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## LATE-BREAKING B & H ANNOUNCEMENT

Mike Dee of the Los Angeles Zoo notified the AKF office that on 16 February, 1982 0.1 Indian rhino was born. This birth marks the seventh in U.S. zoos. The breach birth was videotaped and Mike has promised to send a full report detailing this rare occurrence for future AKF publication. The L.A. Zoo also recorded the birth of 1.0 Zebra duiker in Feb.

We are indebted to the AAZPA Newsletter for allowing us to reprint portions of this section from their "Positions Available" listing. This is a monthly service to us, for you.

CURATOR/BIRDS...requires knowledge of and experience with African and Southeast Asian birds. Responsible for developing off-exhibit breeding programs as well as management of aviary. Individual must possess curatorial experience and proven supervisory skills. Minimum five years' work in zoological park or related facility (three years in curatorial capacity), B.S. in Zoology or related field required. Salary commensurate with experience (\$18,000-\$24,500). Send resume by 30 May 1982 to Bill Zeigler, Metrozoo, 12400 SW 152 Street, Miami, FL 33177.

MARINE MAMMAL CURATOR...responsible for managing and working marine mammal and sea bird section. Position requires extensive experience in marine mammal training, plus knowledge of marine mammal husbandry, supervisory skills and ability to work well with people. Bachelors Degree in Zoology or related field preferred. Contact Andy Grobins, Metropolitan Park District, 10 Idaho St., Tacoma, WA 98409.

ASST. ELEPHANT TRAINER...seeking experienced handler and trainer; duties include operation of elephant rides, supervision of riding track employees and daily care and training of elephants. Salary commensurate with experience, plus benefits. Send resume and salary requirements to Angelo Monaco, Personnel Manager, New York Zoological Society, 185th St. & Southern Blvd., Bronx, NY 10460.

CURATOR OF ANIMALS...responsible for care and maintenance of variety of animals. Person must be versatile. Duties include some keeper/maintenance work, record-keeping, public speaking, diets and medication. Minimum of Bachelors Degree in Zoology or related field and at least two years' experience in care and maintenance of exotic and domestic animals. Salary \$16,000-\$17,500. Send resume to Mike Grane, Business Administrator, Peoria Park District, 2218 N. Prospect Rd., Peoria, IL 61603.

HOSPITAL ZOO KEEPER...requires degree from AUMA-approved veterinary technician program or equivalent, experience with exotic animals and initiative. Duties include care and treatment of hospitalized or quarantined animals, lab work, animal records, some clerical work and teaching responsibilities. Salary \$654/mo. (increases to \$1,157/mo. in five months), plus benefits. Send resume and references by 26 March 1982 to Dr. Mike Douglass, Memphis Zoo, 2000 Galloway, Memphis, TN 38112.

ANIMAL RIDES SUPERVISOR...responsible for care, feeding and training of elephants and camels. Also must supervise seasonal employees. Minimum of two years' elephant and camel training experience. Contact Peter Gros, Director/Land Animals, Marine World Africa USA, 101 Marine World Parkway, Redwood City, CA 94065 (415) 591-7676, ext. #33.

CURATOR OF EDUCATION...responsible for education and volunteerism programs in medium-sized zoo. Salary approximately \$15,000. Contact Earl B. Wells, Director, Fort Wayne Children's Zoo, 3411 Sherman Blvd., Fort Wayne, IN 46808.

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Membership includes a subscription to the *Animal Keepers' Forum*. The membership card is good for free admission to many zoos and aquariums in the U.S. and Canada

### INFORMATION FOR CONTRIBUTORS



*Animal Keepers' Forum* publishes original papers and news items of interest to the Animal Keeping profession. Non-members are welcome to submit articles.

Articles should be typed or hand-printed. All illustrations, graphs and tables should be clearly marked, in final form, and should fit in a page size of no more than 6" x 10" (15 cm x 25½ cm.). Literature used should be cited in the text and in final bibliography. Avoid footnotes. Include scientific names.

Articles sent to *Animal Keepers' Forum* will be reviewed for publication. No commitment is made to the author, but an effort will be made to publish articles as soon as possible. Those longer than three pages may be separated into monthly installments at the discretion of the editorial staff. The editors reserve the right to edit material without consultation unless approval is requested in writing by the author. Materials submitted will not be returned unless accompanied by a stamped, self-addressed envelope.

Telephoned contributions on late-breaking news or last minute insertions are accepted. However, phone-in contributions of long articles will not be accepted. The phone number is (913) 272-5821.

DEADLINE FOR EACH EDITION IS THE 15TH OF THE PRECEDING MONTH

*Articles printed do not necessarily reflect the opinions of the Animal Keepers' Forum editorial staff or of the American Association of Zoo Keepers.*

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# Animal Keepers' Forum



*Dedicated to Professional Animal Care*

APRIL 1982

Executive Editor: Mike Coker  
 Managing Editor: Susan Chan  
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 Editorial Assistant: Diana Brey

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The artwork for the cover of this month's AKF comes from Sally Lieb, a keeper at the Dreher Park Zoo in West Palm Beach, Florida. Pictured is a six-week-old cotton-top tamarin stealing marmoset diet from his willing-to-share father. Thanks, Sally!

# Scoops and Scuttlebutt

## ATTENTION PROFESSIONAL MEMBERS!

Your new AAZK Directory will be out very soon. This new edition will feature more information on members of AAZK, working committees and projects of AAZK, the AAZK constitution and a ballot for Professional members to vote on the incorporation of AAZK as a non-profit professional organization. The 1982 Directory will be in the AKF format size and remember to look for it in your mailbox soon and to return your ballot to National Headquarters.

*Mike Coker, Executive Editor*

## NEW AAZK PUBLICATION TO BE AVAILABLE SOON

The AAZK National Office is pleased to announce a new publication being made available to members after 1 May 1982. The Infant Care/Gestation Booklet will be an informative addition to any Keeper's library. This publication will be designed for ease of supplements of either infant care or gestation material in a looseleaf notebook style at a modest cost. Details on ordering the booklet will be published in a future issue of AKF.

## 'CAREERS IN ZOO KEEPING' BROCHURE AVAILABLE

A brochure entitled 'Careers in Zoo Keeping' has been produced jointly by the Brookfield AAZK Chapter and AAZK National. The brochure outlines the requirements for a zoo keeping career, notes advantages and disadvantages of the profession and discusses the types of work done by keepers. National Office uses these brochures to answer individual's inquiries on zoo keeping as a profession. They are available in bulk orders to zoos and other interested organizations for \$5.00 per 100 copies plus postage. They may be ordered from the National Office, 635 Gage Blvd., Topeka, KS 66606.

## SAFARI TOUR DATE RESCHEDULED

The departure date for the Park East AAZK tour has been rescheduled to October 9 so as not to conflict with the AAZK National Conference in Toronto. Due to an increase in air fares, the cost has been raised to \$1680. For details, contact Park East Tours, 1841 Broadway, New York, NY 10023 (212) 765-4870.

# Births & Hatchings

## MANED WOLF BIRTH AT OKLAHOMA CITY ZOO.....Steve Clevenger

A second breeding pair of Maned Wolves (*Chrysocyon brachyurus*) was established at the Oklahoma City Zoo with the birth of 2.1 youngsters on 26 February 1982 in the off-exhibit breeding area. The pups are second generation captive-born. The mother was born at the Oklahoma City Zoo in February of 1980 and the father was born at Front Royal Conservation /Research Center in January 1980.

The long hair coat, long legs, and slender body of this species make it difficult to determine visually whether an animal is in the latter stages of pregnancy. The female was also at the lower range of breeding age, but did show some behavioral signs of impending birth--self-isolation for approximately 3-5 days before birth and depression of appetite immediately before birth. The pups were discovered outside in the two acre lot. The mother was apparently in the process of moving the youngsters and appeared not to have chosen a permanent den. Two fiberglass modules were available in the exhibit. Due to these circumstances, impending freezing temperatures, and the extremely young age of the mother, the decision was made to pull the youngsters for hand-rearing.

## FEBRUARY B & H FOR SAN ANTONIO ZOO ANNOUNCED.....Cindy Roger

The San Antonio Zoo is pleased to announce the following births and hatchings for February. The Bird Department hatched 2 Nene, 1 African Collared Dove, 1 Diamond Dove, 3 Green-winged Macaw, 1 Roadrunner, 3 Melba Finch, and 3 Bali Mynah X Black-winged Starling. The Aquarium produced 20 Dusky Pipefish and 5 Lyretail Cichlid. The Reptile Department hatched 9 African Spurred Tortoise. The following mammals were born: 2.5 Scimitar-horned Oryx, 0.1 Besia Oryx, 0.1 Blackbuck, 0.1 Dama Gazelle, 0.1 Grant's Gazelle, 1.6 Mouflon, 0.1 Aardvark, 0.0.1 Maned Wolf (DNS), and 1.0 Goeldi's Monkey (DNS).

We are preparing for construction on our cat line. While the carnivores are housed in off-exhibit areas, the old cages will be torn down and moated enclosures built into the native rock. The new exhibits will be for the cats and lemurs.

## DALLAS ZOO ANNOUNCES JANUARY/FEBRUARY NEWCOMERS.....Penny Tadman

The first two months of 1982 produced the following births and hatchings at the Dallas Zoo: Mammal Department--1 Dik Dik, 1 Addax, 1 Celebes Crested Macaque, 1 Patas Monkey, 2 Klipspringer, 1 Blackbuck and 2 Patagonian Cavy; Bird Department--2 Plum-headed Parakeet, 2 American Flamingo, 1 Yellow-fronted Canary and 1 Kookaburra; Reptile Department--1 Godman's Viper.





# Coming Events

## AAZPA GREAT LAKES REGIONAL CONFERENCE

April 18-20, 1982

Columbus, Ohio

## AAZPA CENTRAL REGIONAL CONFERENCE

May 2-4, 1982

El Paso, Texas

## TROPICAL HABITATS WORKSHOP

May 7-8, 1982

Topeka, Kansas

The Workshop will include talks on tropical habitats, problems/solutions for maintaining these types of exhibits, horticultural hints, etc. Registration fee of \$10.00 includes icebreaker, coffee breaks and one dinner. Interested persons should contact Connie Cloak, Topeka Zoo, 635 Gage Blvd., Topeka, KS 66606, (913) 272-5821. Accommodations are available with Topeka AAZK members.

## INTERNATIONAL SYMPOSIUM ON THE CONSERVATION OF THE LION-TAILED MACAQUE

May 19-22, 1982

Baltimore, Maryland

For further information contact The Baltimore Zoological Society, Druid Hill Park, Baltimore, MD 21217.

## *Letters To The Editor*

To the Editor:

I would just like to inform my fellow zoo keepers that the Endangered Species Act is up for reauthorization this year. If it does not pass, it will be gone forever. I urge you to write letters and circulate petitions throughout your departments and send them to your congressmen, senators and to the President. For more information please write: Office of Endangered Species, U.S. Fish and Wildlife Service, Dept. of the Interior, Washington, DC 20240.

Sincerely,

Richard Passaro  
Bird Keeper/Bronx Zoo

(Editor's note: A special two-part series on the Endangered Species Act and its reauthorization begins on page 76 of this issue. S.C.)

# The Endangered Species Act

## ENDANGERED SPECIES ACT REAUTHORIZATION HANGS IN THE BALANCE

PART I OF A TWO PART SERIES ON WHAT THE ESA MEANS AND WHAT YOU CAN DO TO HELP ASSURE ITS REAUTHORIZATION.

In 1982, the United States will mark the 200th anniversary of the selection of the bald eagle as the nation's symbol. In the intervening years our nation has grown and prospered, but the bald eagle has not fared as well. Once the bald eagle nested in almost every state. Now it is rare in most states and nests in only about half of them.

Prompted by the American public, the United States Congress passed the Endangered Species Act in 1973 to save the bald eagle and other wild animals and plants threatened with extinction. Congress found that many species of wild animals and plants "have been rendered extinct as a consequence of economic growth and development untempered by adequate concern and conservation."

The Endangered Species Act (ESA) provides for the conservation of animal and plant species that are currently in danger of extinction ("endangered") and those that may become so in the foreseeable future ("threatened"). The continued existence of many species can be attributed to the ESA's protection. The ESA has also served as a model for numerous state and foreign laws that provide further protection to the world's threatened wildlife.

Still, despite the significance of the Endangered Species Act for conservation throughout the world, several powerful special interest groups are now lobbying the Reagan Administration and Congress to gut the law. The ESA is coming up for reauthorization this year. Both houses of Congress must agree to renew the law and the President must sign it by October 1, 1982.

Recognizing that the ESA is gravely threatened, the Center for Environmental Education along with over 25 other national and international organizations have joined forces to counteract interests opposed to the conservation of endangered and threatened species.

### The Value of Species

Animal and plant species are the living components of the world. Within their natural communities, species interrelate in countless ways that are of vital importance to their survival and to the survival of their communities. Their interactions are also of vital importance to humans. Healthy, natural communities generate oxygen, recycle nutrients, break down pollution, maintain soil fertility, control water availability, and moderate climate. Wild species are the source of many of the basic necessities of human life and have played major roles on the evolution of human culture. No one can predict which species are ultimately of critical importance to human existence or will provide valuable material benefits in years to come.

In the diversity of species, humans have a varied, infinitely renewable supply of food, energy, industrial chemicals, and medicines. Wild species also supply less quantifiable but equally important recreational uses and aesthetic pleasures. To use economic measurement of the aesthetic value of wild species to Americans, we spend over a billion dollars a year on non-consumptive activities associated with wildlife such as bird watching,

## ESA REAUTHORIZATION HANGS IN THE BALANCE, *continued*

scuba diving, whale watching, and wildlife photography.

Despite the obvious advantages to conserving biological diversity, humans are causing extinctions at rates that may be unprecedented since the beginning of life on this planet. From 1600 to 1900, approximately 75 mammal and bird species "went the way of the dodo" at the rate of one every four years. From 1900 to the present, about 75 have vanished - nearly one each year. In addition to mammals and birds, numerous other vertebrates, invertebrates, and plants have been lost. Some biologists estimate that one to three extinctions are now occurring every day and the rate will increase to one per hour by the late 1980's. It is likely that over one million species will be lost in our lifetimes, most of which have never been named, much less studied.

The known extinctions of U.S. animals and plants have increased with the growth of the human population. Steller's sea cows, Merriam elk, Caribbean monk seals, sea mink, Carolina parakeets, and passenger pigeons are gone forever. Fortunately, the Endangered Species Act can save many species threatened with extinction including bald eagles, whooping cranes, hawks-bill sea turtles, Hawaiian monk seals and many others.

### How the ESA Prevents Species Extinctions

The Endangered Species Act of 1973 is among the world's most powerful laws to prevent the extinction of animal and plant species. The ESA provides a variety of methods and procedures which may be used to bring an endangered or threatened species to the point that the species no longer needs the Act's protection.

Listing - The first step for protecting an animal or plant species under the ESA is listing it as endangered or threatened. Any species is potentially eligible for protection. This includes not only the birds, mammals and other vertebrates, but invertebrates, such as butterflys, mollusks, and plants. As noted above, many of the less familiar organisms are important to medicine, industry and agriculture.

The Secretary of Commerce has primary responsibility for protecting marine species under the ESA, and the Secretary of the Interior is responsible for protecting terrestrial and freshwater species. Listing a species as endangered or threatened is a long, complex process that provides ample opportunity for public participation. Final determinations are based solely on the best available scientific information. Evidence must show that the species is in danger of extinction throughout a significant portion of its range or is likely to become so in the foreseeable future.

Harvest and Trade Controls - Once a species is listed, harvest and trade of that species may be controlled by the federal government. Subject to certain limited exceptions, endangered species may not be purchased or sold in interstate or foreign commerce. Endangered animals (but not plants) may not be killed, hunted, collected, injured, or otherwise "taken". The controls on threatened species vary with the conservation needs of the species.

Habitat Acquisition - Section 5 of the ESA authorizes the Departments of Interior and Agriculture to acquire habitat for conserving endangered and threatened species. Funds made available by the Land and Water Conservation Fund Act of 1965 may be used for this purpose. Habitat acquisition has been used only rarely as an emergency or last resort measure. The

## ESA REAUTHORIZATION HANGS IN THE BALANCE, continued

Fish and Wildlife Service, for example, has acquired essential habitat for the 40 or so remaining Mississippi sandhill cranes.

State-Federal Cooperation - State conservation agencies have a major role in conserving our nation's wild animals and plants. Many states have adopted endangered species laws that complement the ESA.. Section 6 of the ESA authorizes matching federal funding for state endangered species programs. In the current fiscal year, however, the Reagan Administration has eliminated all federal funding for state endangered species programs. Many of these programs will, therefore, die.

Federal Agency Activities - Section 7 of the ESA requires federal agencies to use their authorities to conserve endangered and threatened species. Many agencies, like the U.S. Forest Service, have worked to ensure that the needs of listed and other sensitive species are accounted for in their programs.

Section 7 also requires federal agencies to ensure that actions which they authorize, fund, or carry out do not jeprodize the continued existence of a listed species or destroy or adversely modify critical habitats. The ESA requires that "critical habitat" for a species be determined at the time of the listing, unless such a determination would not be considered prudent. The designation "critical habitat" is a means of alerting federal agencies, landowners, and others that the area is important in conserving the species. It is important to note that only federal agencies are subject to Section 7.

International Cooperation - Section 8 of the ESA provides for international cooperation for conserving wild animals and plants worldwide. The Secretaries of the Interior and Commerce are directed to encourage conservation in other nations, to enter into conservation agreements with foreign nations, to assign personnel to foreign countries and international organizations to promote the conservation of wild animals and plants, to provide financial assistance for training foreign conservation personnel, and to conduct law enforcement investigations and research abroad.

Section 8 also authorizes U.S. implementation of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and the Convention on Nature Protection and Wildlife Preservation in the Western Hemisphere.

Roles of Private Citizens - Private citizens have important roles under the ESA. They can participate in the designation of endangered or threatened species and their critical habitats. They can even initiate listings by petitioning the Secretaries of Interior or Commerce. Perhaps the most important role, however, is the opportunity for citizens to assist in the Act's enforcement by filing citizen lawsuits against individuals who violate the ESA.

ESA and Economic Development - Listing a species as endangered or threatened, or designating critical habitat does not stop sound economic development. Section 7 of the ESA does prevent federal agencies from jeopardizing the continued existence of listed species or destroying their critical habitat. This requirement is carried out, however, through interagency consultation that is intended to identify reasonable development alternatives that do not conflict with species conservation. In over 98 percent of the cases, no serious conflicts are identified. When conflict does occur, a proposed project might simply be moved to another suitable location, or conducted at a different time of the year. When there are no

## ESA REAUTHORIZATION HANGS IN THE BALANCE, continued

reasonable alternatives and the proposed federal action is economically sound and of regional or national importance, the ESA provides a way to exempt the action from the requirements of Section 7.

(Editor's Note: Part II of this special series on the reauthorization of the Endangered Species Act will appear in the May 1982 Forum and will follow the process of reauthorization through Congress, list goals and objectives sought by conservation groups and will map out further action you can take to help ensure reauthorization of the ESA. The preceding article has been excerpted from a Special Supplement to The Whale Report, Vol. 6, No. 1, Winter 1982. Published by the Center for Environmental Education/Whale Protection Fund, 624 9th St., NW, Washington DC 20001, The Whale Report is sent free of charge to all Whale Protection Fund supporters and other interested parties. The following information was sent from Legislative Coordinator Kevin Conway and is excerpted from Action Alert from the National Wildlife Federation Conservation Report. Kevin urges that "reauthorization of the ESA should be a high priority project for all AAZK members and chapters; AAZK members should also strive to make their zoo visitors aware of the importance of this reauthorization in the hope that they will contact their congressional representatives voicing their support for the ESA." S.C.)

### CONGRESSIONAL ACTION

The Senate Subcommittee on Environmental Pollution held its first oversight hearing on the Endangered Species Act last December. The House Subcommittee on Fisheries, Wildlife Conservation and the Environment followed suit on February 22. Soon after this hearing, the subcommittees will begin drafting and considering specific bills. Hearings, mark-up, and full committee approval of a bill must be completed by May 15, then pass both houses of Congress and be signed by the President before Oct. 1.

NOW, while the subcommittees are writing new language, we need your help to show wide support for a strong Endangered Species Act. Check the list below to see if your Senators and/or Representatives are members of the two subcommittees involved. If so, write them immediately at:

The Honorable \_\_\_\_\_ OR  
U.S. House of Representatives  
Washington, D.C. 20515

The Honorable \_\_\_\_\_  
U.S. Senate  
Washington, D.C. 20510

If your Congressman or Senators are not subcommittee members, you should address your letters to the chairman, Senator John Chaffee and Representative John Breaux, with a copy to your own Congressman. Please write today and express your support for a strong Endangered Species Act.

#### Senate Subcommittee on Environmental Pollution:

Chafee (R.I.), Simpson (Wyo.), Symms (Idaho), Gorton (Wash.), Mitchell (ME), Hart (Colo.), Moynihan (N.Y.)

#### House subcommittee on Fisheries, Wildlife Conservation and the Environment.

Breaux (La.), Anderson (Calif.), Young (Alaska), Bowen (Miss.), Studds (Mass), Emery (ME.), Bonker (Wash.), D'Amours (N.H.), Evans (Del.), Oberstar (Minn.), Hughes (N.J.), Davis (Mich.) Lowry (Wash.), Tauzin (La.), Carney (N.Y.), Hutto (Fla.), Hertel (Mich.), Shumway (Calif.), Donnelly (Mass.), Forsythe (N.J.), Schneider (R.I.), Dyson (Md.), Patman (Tex.), McCloskey (Calif.), Shaw (Fla.) Pritchard (Wash.).



# Book Review



## The Snouters: Form & Life of the Rhinogrades

By Harald Stümpke; Translated by Leigh Chadwick.  
Published by University of Chicago Press, 5801  
Ellis Ave., Chicago, IL 60637: 1981; 92 pp.  
(re-release of original English version by the  
American Museum of Natural History)

Review by Frank Kohn  
Audubon Park and  
Zoological Gardens  
New Orleans, LA

Thirty-six years ago, an isolated archipelago in the southwest Pacific was discovered. On it lived a uniquely variable family of mammals collectively termed the Rhinogrades owing to an array of nasal specializations. The snouters, as they are more commonly referred to, are a group of mammals comprised of insectivorous, herbivorous, frugivorous, fossorial, crab-eating, plankton-feeding, sessile, parasitic, predacious and even flying species. Sadly though, a nuclear accident wiped out the archipelago, its animals and scientists.

Harald Stümpke, the author of this fascinating monograph, has assembled an intricate story of these highly appealing animals. Ranging in size from several millimeters to about four feet, they occupied almost every exological niche possible representing a sort of Darwin's finches of the south seas or, if you will, Stümpke's Snouters.

The analysis of their adaptable life styles is well written although documentation is lacking for a number of reasons, the nuclear accident being the major one. But Stümpke presents fascinating accounts of the snouters in both written and pictorial form from *Ototeryx*, with its long ears for flight and three-jointed snouter on which it perched and hopped about, to the flower-faced snouter *Corbulonassus* which stood tall on its twenty-inch rooted tail and attracted insects by spreading the multiple petal-like appendages of its snout.

There were 189 species in all made up of 26 genera and 14 families and the diversity of their nasal and caudal specilizations seems endless. One species, *Nasobema* (snout-walker), could inflate its tail to almost four yards with digestive gases in order to swing through the vegetation avoiding its foe, *Tyrannonassus*, the only predatory snouter.

The anatomy, embryology and some physiology is also outlined in The Snouters in clear diagrams and transcribed in a style captivating and provocative to all zoologically-inclined readers.

The tragedy, of course, is that when one finishes this short book, one must face the realization that the snouters do not exist, nor have they ever actually "snouted" the face of the earth. Harald Stümpke's The Snouters is a classic tale of paleontological and zoological science-fiction and I highly recommend it to everyone tuned in to any of these three subjects. The imagination behind the book is of a high caliber and The Snouters should be well-received at a time when we are unsure about the future of all wildlife including ourselves.



By  
Dan Manchester Sr.  
Morrisville, PA

For many years I have maintained and bred aquatic turtles with relative success. Until just recently, I have always used straight tap water, with little, if any, regard for the PH factor of the contents. As with most hobbist, I have seen and treated a variety of maladies which befall turtles, but this is the most unusual.

During the course of several months, newly acquired specimens introduced to the 'community' at various times would become almost entirely engulfed in fungus on their soft parts, in a matter of just a few days. The fungus first attacked the feet, then limbs, tail, and neck. Affected turtles were isolated and treated with a Furazone solution, after which the soft parts were painted with Merthilate and allowed to dry. These devices worked well on most stricken individuals, but many of the weaker succumbed. It had become increasingly evident that there was a problem or problems, I was overlooking and I was becoming quite perplexed at this matter for obvious reasons.

Having constant filtration in all my units, unclean conditions were ruled out, which led me to believe there may be some problem with the water. While discussing my dilemma with a good friend, who is quite knowledgeable in the care of Tropical fish, the issue of 'Ph' came up. I had not considered this and questioned the relevance of the PH factor to water turtles. Since I have never read or heard any discussion in regards to turtle care and PH balance, this was the farthest thing from my mind. \*\*

Shortly after our discussion, I tested my water and found it to be very high in Alkaline content (7.4) and began to neutralize it gradually with Sodium Biphosphate, a standard ingredient used in the control of aquarium water. Turtles that had been affected with fungus at the time were soaked in a heavy solution of Sodium Biphosphate, twice daily, until the fungus was eliminated. This apparently was a soothing agent to the aggravated skin condition of the turtles. (note: Many 'Turtle Bath' products sold in pet shops are simply a heavy dose of Sodium Biphosphate and/or salt solution.)

It must be noted that most, if not all types, of fungus can be lethal to turtles housed together, especially left untreated. I have seen a fungus outbreak all but wipe out an entire collection of juveniles before it was arrested. Any sick turtle, regardless of severity, should be isolated immediately to safeguard the remaining healthy individuals.

When obtaining wild-caught turtles, attempt to get a sample of the water in which it was captured, and compare the PH to your own tap water. Chances are, the PH will vary substantially and have adverse affects on the weak and less tolerant species if not corrected. Circumstances will vary, of course, according to locality and the amount of chemicals used in your local treatment facility. The species of turtle is also to be considered some are obviously more delicate than others and should be treated accordingly. (i.e. *Serpentina* and *Kinosternon* can be found in the foulest water conditions, in the wild state, while *Graptemys* and *Chrysemys* are not so tolerant. Juveniles of all species are more prone to illness or infection than their adult counterparts.

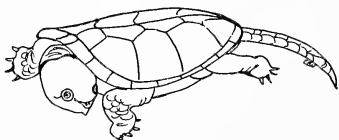
## PH Factor And Aquatic Turtles, *continued*

I am happy to report that through this brief research, I have determined the problem, initially, to be unsatisfactory PH balance, (7.2-7.4), that is, unsatisfactory to certain turtles resulting in skin reaction and resulting fungus infections. By adjusting the PH to a neutral condition, the fungus problem was eliminated entirely within 48 hours of the initial adjustment. Soaking affected turtles in Sodium Biphosphate, as mentioned, speeded recovery, and left the stricken individuals with bright clean skin one week later.

PH test kits are inexpensive and available at any pet store and are very simple to use, as are the making of PH adjustment if required. Also, your water can be tested by your local Board of Health Center or water treatment facility, normally free of charge. Ideal PH balance should be 6.8/7.0 or a light green color in the test vial. 'Blue' denotes high Alkaline content (7.4 or more) and 'Yellow' indicates Acid water (6.2/6.4) The Ph factor is a serious subject for the knowledgeable Aquarist a and tropical plant collector, and it seems that aquatic turtles are no exception. Most tropical fish will expire quickly when exposed, suddenly, to untreated tap water, as will many tropical plants. So it is conceivable that aquatic turtles, who depend heavily on the quality of their surroundings, can be affected likewise.

In closing, it must be remembered that turtles, like all other reptiles, cannot tolerate sudden extreme conditions, whether it be climate change, water temperature, or a sudden change in the water it is required to live in. So, along with proper diet and adequate filtration, a constant temperature, and available basking facilities, I have added regular water checks to my "routine" of turtle care. Such trivial activities and awareness to unusual behavior or appearances, will save the Turtle Hobbist many headaches later on, and more importantly will save much suffering for the captive turtle.

**\*\*As this writing was being prepared, I have since found reference to "PH & Alkaline Water" in Dr. Peter Pritchard's latest book (Encyclopedia of Turtles, pg.845) in which he associates Alkaline Water to 'Shell Rot' in aquatic turtles in captivity. How these two circumstances might be related is unknown to me, but it is apparent that there is some parallel between improperly balanced water and infectious conditions in turtles.**



(Editor's Note: Mr. Manchester's article originally appeared in the Turtle Trust Occasional Papers, published by Turtle Trust of Westport Point, MA 02791. Turtle Trust is a charitable trust for the protection of turtles especially through captive breeding. This non-profit organization also helps in finding good homes for healthy but damaged turtles which zoos may wish to remove from their collections and also will assist in matching pairs for breeding purposes. You may become a supporting member of Turtle Trust with a \$10.00 donation and receive their Occasional Papers newsletter and information on upcoming turtle seminars etc. Mr. Manchester has asked that any individuals wishing to correspond with him concerning the preceding article or other turtle-related information, contact him at: 389 McKinley Ave., Morrisville, PA 19067.)





AMERICAN ASSOCIATION OF ZOO KEEPERS  
INCOME STATEMENT

January 1, 1981 through December 31, 1981

REVENUE:

Memberships	\$ 22,745.00
Chapters	125.00
Patches	282.00
Animal Keepers' Forum	200.00
Directories	406.85
Buttons	-----
Decals	105.65
1981 Conference-Fresno	1,982.34
Donations	132.00
Pins/Charms	174.00
Conference Proceedings	101.00
T-shirts	-----
	-----
TOTAL REVENUES	\$ 26,254.59

OPERATING EXPENSES:

Animal Keepers' Forum	\$ 12,840.00
Postage & Parcels	2,495.73
Postage Meter, Base & Scale Rental	982.10
Office Equipment & Supplies	6,003.07
Taxes	1,063.47
Wages	5,507.33
	-----
TOTAL OPERATING Expenses	\$ 28,891.70
NET FOR YEAR (LOSS)	(\$2,637.11)

Cash on hand 1-1-81	\$7,632.34
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Cash on hand 12-31-81

Checking Account	2,222.26
Savings Account	2,518.28
Ctf. of Deposit	1,000.00
TOTAL CASH ON HAND	-----
as of 12-31-81	\$5,740.54

Interest earned on Savings	141.30
----------------------------	--------

ASSETS:

Cash	\$5,740.54
Postage	310.74
Inventory	
Patches	4,422.00
Directories	639.00
Office Supplies	300.00
Office Equipment	100.00
Pins/Charms	630.00
	-----
NET WORTH 12-31-81	\$12,142.28
12-31-80	10,329.93
GAIN IN NET WORTH	1,812.35

ANIMAL RECORD SYSTEM OF  
THE RIO GRANDE ZOO

By  
Becky L. Rouse

The animal record system of the Rio Grande Zoo has come a long way in the past several years; however, it is far from perfect and has much room for improvement.

In order to keep records of the animals on hand, on breeding loan, or inactive, the zoo utilizes two systems -- the ISIS (International Species Inventory System) and the VISIrecord system. Currently ISIS registers mammals and birds, and hopes to include reptiles and amphibians within the year. The Rio Grande Zoo had almost all of the mammals on register with ISIS and birds will hopefully be added soon. The VISIrecord is currently used for all four classes of animals and is an in-house system.

ISIS is operated out of the Minnesota Zoological Gardens in Apple Valley, Minnesota. It uses a left-justifying computer system to keep track of the registered animals for most of the zoos in the United States as well as international zoos and animal dealers. Annually they publish complete lists of species and the institutions holding them. Most information is in the form of microfiche, but some comes on computer print-outs. Aside from simply keeping records, they offer a variety of information service. For example, the curator of mammals needed information on the whereabouts of all siamangs (*Symphalangus syndactylus*) in the world. A call was placed to the ISIS headquarters and within an hour, they called back with a list of institutions currently holding siamangs!

The actual registration of animals is rather detailed but can be learned quickly. The registration card (New Inventory Data) is rather straightforward and actually anyone can read the card and get almost any information required for a particular animal, with perhaps the exception of medical records. Sections I through V require the use of special codes. The taxonomic code and institution code can be easily referenced with the use of the individual volumes published by ISIS giving names and codes. The specimen ID number is assigned by the individual zoo. Dates are written in the order - day, month and year. Usually the acquisition of animals involves sections I, II (if genealogy is known) and III. If the animal was acquired other than through birth, section IV is completed.

One card is sent to ISIS when the animal is acquired and a separate one is sent when it leaves the collection for any reason. The card itself has a single sheet on top which is sent to ISIS and the bottom card is kept for the zoo's records. ISIS has compiled an instruction book which goes into each section in detail, so actually the process is a simple clerical operation and does not require extensive knowledge of the animals themselves. (Of course, it does help to be familiar with scientific names, common names and the like.)

The VISIrecord system entails the use of a large card file with divisions for each of the four classes. This is further broken down into an active file, breeding loan file and inactive file for each class. In the front of the file cabinet are current inventories for each class. This facilitates the location of particular cards as the system is set up according to the format followed in the inventories; divisions by order, family, genus and species. Each animal has a separate card with all information known with the exception of some amphibian species. In the case of large groups of a single species, group and herd cards are also included. After the initial card is made for an animal, it is updated

## ANIMAL RECORD SYSTEM AT THE RIO GRANDE ZOO, continued

regularly with medical and breeding records supplied by the vet staff and curators. The benefit of having individual cards is obvious. When an animal is shipped out, a copy of its card is sent along with the other paperwork and thus, the receiving institution has a record of the animal's past history and other pertinent data. This greatly improves the professionalism of the zoo. A copy of the ISIS card is usually forwarded as well.

As previously mentioned, the record system has come a long way. Many, many long hours of researching old records, correspondence etc. were put in by clerical staff and curators. Because there had never been a complete system for animal records, the acquisition information on many animals was not found. This is very frustrating when trying to determine genealogy lines within groups of animals. More than once a keeper has come to a curator and asked about a particular animal, and the curator has thrown up his hands and said, "Your guess is as good as mine." This trend is changing, however. The vet staff has been active in establishing a comprehensive tag, band, tattoo and ear notch system so that specific identification is becoming much easier. This is convenient for determining parents in the case of newborns and for recording medical treatments.

The reader may be curious as to how this system works on a day-to-day basis. Following are some examples.

- 1) Birth: A VISI record card is made for the new animal including sex (if known) and date of birth. An ISIS number is assigned. If the dam is known, the birth (or hatch) is recorded on its card. If a group or herd card is used, the birth is recorded there as well. The ISIS New Inventory Data sheet is completed and sent to ISIS.
- 2) Death: The animal's VISI card is pulled and the final disposition section is completed including necropsy number and cause of death. This information is supplied by the vet staff. An ISIS card is completed using Section V --Death Data. Under the comments section, the cause of death is usually written out. If there is a herd or group card, the death is recorded. The animal's ISIS and VISI cards are then placed in the inactive files.
- 3) Animal in: All information known on the animal is completed and put on a VISI card. An ISIS number is assigned and the animal is registered with ISIS using Section IV - Transaction Data. Again, if a herd or group is involved, the acquisition is recorded. Cards are then placed in the appropriate files.
- 4) Animal out: The animal's cards are pulled and information on disposition recorded. An ISIS Inventory Data sheet is completed using Section IV - Transaction Data. Herd or group card is noted with the information. If the animal is going out on breeding loan, the VISI card is placed in the Breeding Loan section of the file. If not, it is placed in inactive. The same holds true for ISIS cards.
- 5) Date change: The change is made on the VISI card and a Correction/Addition Data sheet (a pink form) is sent in to ISIS. On the pink sheet, it is often necessary to state under comments exactly what is being revised/added to avoid confusion with ISIS. An example of a date change would be if an animal's sex was previously unknown and was recently determined.

In addition to the daily routine of keeping the system updated, several other procedures are necessary. Monthly, the vet submits a report of all veterinary procedures for the month. All of this data must be transferred to the individual and/or group cards. Quarterly, the curators take an inventory of animals on hand plus those out on breeding loan. Those must be typed and copies to the director and any other institutions/individuals specified by the curators. Annually, the State Game and Fish Department requires a list of all animals in the collection which are protected by the state. Additionally, federal agencies such as U.S.D.A. and U.S.D.I. request information on post-quarantine, endangered, threatened, marine or other species. Also, other institutions write to the zoo asking for information on the animals. The information is used for many reasons, including studbook and research projects. The curators compile the information with the assistance of the veterinary staff or other personnel. Having the ISIS and VISI systems greatly facilitates the accumulation of data for all of the above mentioned procedures.

In conclusion, the importance of the animal record system cannot be over-emphasized. It is a vital part of the operation of any well-organized zoo. Not only does it aid the zoo staff in identifying particular animals for breeding and medical purposes, the animals are better off for having the records. For example, suppose one of the keepers observes an animal to be very very lethargic and is concerned about it. The keeper goes to the curator and they look up the card on the animal. They find out that the animal has a long history of medical problems. The vet is notified immediately and the animal is cared for accordingly.

If there had been no records for the animal, the vet would have had a more difficult job in determining the animal's ailment, and in many cases, time is the crucial factor. Like any effective system, the animal records must be continually updated and the most modern techniques employed. Hopefully, the Rio Grande Zoo animal record system will continue to improve and expand. One suggestion to improve the records is to utilize keeper input more extensively. Thus, keepers need to be more precise in their reporting on zoo animals in their daily reports. From there, the curators can forward the information to the clerk, who can include such information on the animal records.



## **Publications Available**

### TRAFFIC (U.S.A.) Subscription Available

TRAFFIC (U.S.A.) , the newsletter published quarterly by the World Wildlife Fund-U.S.A. is available for a \$10.00 donation. Within the next few months, they will be publishing trade reports on African mammal trophies, orchids, cacti, ginseng, live reptiles and tropical fish. Subscriptions may be obtained by writing TRAFFIC (U.S.A.), 1601 Connecticut Ave. N.W., Washington, DC 20009.

### Dodo #18 Subscriptions Available

The Dodo is the technical Journal of the Wildlife Preservation Trust, publishing papers on biology, behavior, nutrition and pathology of endangered species. Professional subscriptions are available at \$18 per year. (The Dodo is available to Trust members for \$10 in addition to their minimum \$15 membership donation.) Inquiries and subscriptions should be sent to: Wildlife Preservation Trust International, 34th Street and Girard Ave., Philadelphia, PA 19104 (215) 222-3636. Back issues of Dodo available include Numbers 9,10,11,12,15 and 17. The price for these is \$4.00 each.

# Chapter

Patti Kuntzmann  
Coordinator for Chapter Affairs

## Dallas Chapter

The Dallas Chapter held elections in January. Their new officers are:

President....Bill Lamoreaux  
Vice President....Ken Kaemmerer  
Sec/Treas....Beth Lasher  
Communications Coordinator..Jim Albert

The Chapter has established committees for the following: a) coordinating programs and visits to nursing homes and children's homes; b) for bringing in guest speakers; and c) a research committee for those keepers interested in doing research.

They are also looking into working closely with the Phoenix Bird Rehab center whom they recently had as guest speakers. The center needs volunteers interested in doing school shows and programs with some of their raptors which are unreleasable for one reason or another. Some chapter members are willing to help out in the center's endeavors to teach children and adults the need for keeping such birds wild. They are hoping that the project will be in full swing this spring. Good luck on this important project! Good work!

The Dallas Chapter is producing a newsletter for its members called *Dallas Zookeeper - Month In Review*. If your chapter is producing a newsletter for its members, or a newsletter for more general in-house consumption, we of the Dallas AAZK chapter would like to exchange publications with you. Contact Jim Albert, Dallas Zoo AAZK, 621 Clarendon Dr., Dallas, TX 75203.

## Atlanta Chapter

Congratulations on the formation of your chapter. I know you've been trying for a long time. Your first project is a very important one, that being, new labels and graphics for your zoo. Go to it! Educate!

## Fresno Chapter

In January the Chapter elected officers for 1982. They are:

President....Brenda Lodge  
Vice Pres....Scott Barton  
Secretary....Mary Swanson  
Treasurer....Mary Cott

They have set aside \$1,000 of their conference profits for the purpose of helping with the expenses of sending one chapter member to Toronto. They are also considering buying a small microwave oven for their new keeper lounge and possibly the adoption of one of the zoo's animals.

In December they held a Christmas bake sale. You deserve any gifts and good fortune that may come to you. You all worked hard on the 1981 Conference and you could certainly tell. Good luck!

## Puget Sound Chapter

This chapter reorganized in July of 1981, and at that time started a keeper training program. They also have an eagle release program. You're doing great, gang! Keep it up!

# News

## Audubon Zoo AAZK Chapter

The Audubon Zoo chapter of AAZK has donated \$500 to the Zoo's Wild Bird Rehabilitation Program. Last year over 700 birds were accepted for care and treatment. The program relies on a staff of fifty volunteers and one part-time employee to assist the program coordinator. The money will be used for the purchase of equipment necessary to further develop the Rehabilitation Program.

---submitted by Frank Kohn  
Audubon AAZK Chapter

# Primate Profiles

## SADDLEBACK TAMARIN BIRTHS AT THE HOUSTON ZOO

By

Karen Kaplan  
Keeper/Children's Zoo

On 1 December, 1980, our newly paired Saddleback Tamarins (Saguinus fuscicollis illigeri), "Goblin" and "Serana", became parents for the first time. This birth was especially important because both animals were inexperienced - the male having been hand-reared and the female parent-reared for only six months.

The male, "Goblin", and his sister, born on Halloween 1976, were pulled for hand-rearing in our Nursery due to the death of their aged mother. They were housed together until September 1977 when both were transferred to the Small Mammal facility for eventual pairing with other tamarins. During this period, no offspring were produced.

In December 1979, the zoo acquired two females unrelated to our males. After a three-month quarantine, they were moved to the Small Mammal facility for introduction to our males. One of the new females, "Serana", born in February 1978, was selected to be "Goblin's" mate. "Serana" had been raised by her parents, but separated from them at six months of age, shortly before her mother gave birth again.

"Serana" and "Goblin" were introduced to each other on 20 March 1980 and housed in an off-exhibit unit until an exhibit area (7' x 5' x 3' with a nest box 1' x 10"²) was finished for them in May.

Shortly after being placed on exhibit, the pair were separated for three weeks due to an injury to "Serana". After reintroduction, when still no breeding had been observed, there was talk of finding a new mate for "Serana" because "Goblin" did not seem to be doing his job. But on 15 September 1980, a noticeable change was seen in "Serana's" midsection. Calculations were made and possible dates for the birth were noted. At this point, "Serana" was thought to have been about 2½ months into her pregnancy, and since the gestation period for tamarins is about 5 months, the expected due date was the beginning of December. This proved to be true.

From the beginning, "Goblin" held both babies and transferred them to "Serana" for nursing. This is normal behavior in tamarins and "Goblin" did well. On 6 December 1981, one of the young was found on the floor of the exhibit. It was removed and taken to the clinic where it died later that day. The death was attributed to parental inexperience and neglect. The surviving offspring, believed to be a male, grew rapidly and was observed eating solids on his 29th day. Twinning is common in tamarins and with the first set of offspring, usually only one may make it to maturity. So the loss of one of the young was not unexpected.

On 3 September 1981, "Serana" and "Goblin" became parents again. Their first young, now an adolescent, did his part by helping to carry his two siblings. All was well until 5 September when one young, a female, fell into the water bowl and was taken to the clinic for examination. She was healthy and strong and the decision was made to hand-rear her in our Nursery. On 6 September, the sibling was found dead on the exhibit floor.

This birth occurred over Labor Day weekend and it is believed the added

## SADDLEBACK TAMARIN BIRTHS AT THE HOUSTON ZOO, (continued)

holiday crowds proved too stressful for the parents and combined with their inexperience, contributed to the loss of one of the young.

We hope there will be more offspring from this pair, proving that successful reproduction with hand-reared or inexperienced tamarins is possible. Although the success rate is low, the literature indicates *Saguinus sp.*, with no previous exposure to caring for young within a family group, sometimes succeed in raising young.

As a late note, "Serana" is pregnant again and due in February 1982. The colony is growing and in the future, the hand-reared female offspring will be placed in an introductory unit within the exhibit containing the breeding pair and the parent-reared male. This will provide the hand-reared female the opportunity to be exposed to maternal care behavior and increase likelihood of this female successfully raising her own offspring.

*Postscript - On 26 February, "Serana" gave birth to --triplets! One, a female, was pulled from her older brother's back for hand-rearing in the Nursery (wt. 24.6 g.) On 7 March, one was found dead in the nest box, cause unknown. The surviving young is doing well with the parents and older brother.*



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## CONDOR EGG LOST IN PARENT'S BATTLE

Hopes for the continued survival of the magnificent California condor received a harsh blow recently when the only known egg laid this breeding season was lost during a fight between the parents. To the horror of wildlife biologists who have been observing the few remaining members of this species, the egg was knocked from the nest and cracked on the rocks below. The parents were apparently battling over which of them was going to incubate the egg.

"There was a real musical chairs going on in the nest," biologist John Ogden said. "One of them would sit down on the egg and the other would come in and try to push the first one off. They would jab each other in the face and really get physical." The incident occurred in the mountains near Ventura, CA. The pair have made up and biologists are now wondering if they can produce a second egg during this mating season. If they do, it would be the first time on record.

## **Keeper's Alert**

Members of the Puget Sound Chapter of AAZK will gladly provide accommodations for Keepers who are planning to attend the Third International Snow Leopard Symposium. The Symposium will be held in Seattle, WA, June 23-25, 1982. Direct your requests to the attention of: Judie Steenberg, Woodland Park Zoological Gardens, 5500 Phinney Ave. N., Seattle, WA 98103.

# Legislative News

Compiled by Kevin Conway

## EFFECT OF FINAL DECISION TO PERMIT COMMERCIAL IMPORTATION OF CERTAIN KANGAROO SPECIES

On 29 April 1981, the Department of the Interior, Fish and Wildlife Service (FWS), published a rule in the *Federal Register* authorizing the importation for commercial purposes of hides and parts of the red kangaroo (*Megaleia* *rufa*), the eastern gray kangaroo (*Macropus giganteus*) and the western gray kangaroo (*Macropus fuliginosus*). There has been some confusion as to the intent of this publication because these species were previously listed as threatened under the Endangered Species Act.

Importation of and interstate commerce in threatened species is generally prohibited. However, a provision in this listing included conditions which the Australian states could meet, after which commercial importation would be permitted. These conditions - development of a sustained yield program and certification that taking of such species would not be detrimental to the survival of the species - have now been met.

On 31 December 1981, the FWS published in the *Federal Register* an interpretation of their 29 April decision. They explained that these exemptions had been included in the regulations, that requirements for the exemptions had been satisfied, and that red, eastern gray and western gray kangaroo could indeed now be imported and traded in interstate commerce.

---AAZPA Newsletter  
February 1982

## PROPOSAL TO REMOVE BOBCAT FROM APPENDIX II OF CITES

The Department of the Interior, Fish and Wildlife Service is submitting a proposal to remove U.S. and Canadian populations of bobcat (*Lynx rufus*) from Appendix II of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).

All Felidae, including bobcat, were listed on Appendix II of CITES in 1976 at the First Meeting of the Conference of the Parties. At that time, there was no supporting evidence of the population status of bobcat. Since 1976, all states which allow bobcat to be harvested have conducted surveys and established or improved existing management programs.

Information from state, public and private organizations on population status, management and utilization indicates that the bobcat is not potentially threatened by extinction. Removing bobcat from Appendix II will have no adverse effect on survival of the species or on the effectiveness of CITES in controlling international trade in other Felidae.

---AAZPA Newsletter  
February 1982



U.S. 1979 ANNUAL REPORT OF CITES AVAILABLE

The U.S. Fish and Wildlife Service has announced the availability of the 1979 U.S. Annual Report for CITES. Copies of this Report may be purchased from the National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22161, telephone (703) 235-4650. Requests for report number PB 82-128646 should be made to the attention of the Sales Desk. Purchase price is \$18.00 for printed form and \$4.00 for microfilm.

---Federal Register  
23 February 1982

REVIEW OF THE STATUS, U.S. BREEDING POPULATION OF THE WOOD STORK

The U.S. Fish and Wildlife Service is reviewing the status of the U.S. breeding population of the wood stork (*Mycteria americana*) to determine if this population of this species should be proposed as an endangered or threatened species. This review is being undertaken because of indications that the U.S. breeding population of wood storks has been decreasing and adverse modification of their habitat is occurring. The U.S. wood storks nest primarily in Florida, but post-breeding dispersal carries them throughout much of the Southeast. The Service welcomes additional data on the status of this bird and its habitat. The Service is also requesting information on environmental and economic impacts and effects on small entities that would result from proposing the wood stork as an endangered or threatened species and information on possible alternatives. Information should be submitted on or before April 19, 1982. Comments and data should be sent to the Area Manager, U.S. Fish and Wildlife Service, Dept. of the Interior, 15 North Laura, Jacksonville, FL 32202.

---Federal Register  
16 February 1982

PRESIDENT REAGAN SIGNS PROCLAMATION ON BALD EAGLE

On 28 January 1982, President Ronald Reagan signed a proclamation designating 1982 as the "Bicentennial Year of the American Bald Eagle" and further designating 20 June 1982 as "National Bald Eagle Day" throughout the U.S.

The Proclamation read in part: "On June 20, 1782, the bald eagle became our Nation's symbol and national bird. As we approach the bicentennial anniversary of that event, we have an excellent opportunity to pause and reflect upon the importance of the bald eagle, indeed of all our fish and wildlife resources, to a healthy America. On this occasion, let us renew our commitment and dedication to the conservation of our national heritage as symbolized by the bald eagle."

(The National Wildlife Federation has a bald eagle poster this year with a captivating photograph of a bald eagle on one side and eagle facts on the back. Local AAZK Chapters might like to consider combining the proclamation with the posters as a method of celebrating National Bald Eagle Day at their respective zoos. This activity might also be tied in with an Endangered Species Reauthorization Awareness Day for zoo visitors (see ESA Article on page 76 of this issue of AKF)



## TROPICAL HABITATS WORKSHOP

There's still time to register! Our schedule is taking form as many people respond, with an exciting diversity of topics. The following is the preliminary agenda for the Workshop.

Thursday, May 6 - Icebreaker Party (evening)

Friday, May 7 - 9:00 a.m.- Tour of Topeka's Tropical Rain Forest followed by Coffee Break; 10:30 a.m.- Papers and Discussions; Noon- LUNCH; 2:00 p.m.- Papers and Discussions; 4:00 p.m.- Tour of Gage Park Greenhouse; 6:00 p.m. Potluck Dinner.

Saturday, May 8 - 9:00 a.m.- Papers and Discussions; Noon- Plant Swap.

Dr. John Simmons of the Natural History Museum at the University of Kansas will be the featured speaker on Friday. He will speak on a region of the upper Amazon in which he has worked, and on the wider topic of destruction of rain forest in the Amazon.

Other speakers and topics will include: A representative from Mark Morris Associates (developers of ZuPreem diets) on Nutrition; Bob Foster, City Horticulturist on Basic Plant Care; Delfi Messinger, Sedgwick County Zoo on Soils; Dave Wetzel, Kansas City Zoo on Problems with Asian Fruit Bats in a Tropical Habitat; Connie Cloak, Topeka Zoo on Free-ranging Mammals in the Tropical Rainforest exhibit; Paula Strasser, Audubon Zoo on Small Space Exhibits; and Mike Coker, Topeka Zoo will chair a panel discussion on Pest Control.

The registration fee of \$10.00 per person includes icebreaker, dinner and coffee breaks. Those presenting papers will be exempted from the fee. Make checks payable to "Topeka AAZK". We hope you'll decide to count yourself in! Please let us know as soon as possible to enable us to plan successfully. Contact: Connie Cloak, Topeka Zoo, 635 Gage Blvd., Topeka KS 66606, (913) 272-5821.

DATES FOR THE WORKSHOP ARE MAY 7-8, 1982

### Tropical Habitats Workshop Registration Form

Name/Position \_\_\_\_\_

Institution \_\_\_\_\_

Home Address \_\_\_\_\_ Phone \_\_\_\_\_

( ) I would like to register for the workshop. (\$10.00 per person)

( ) I will present a paper on (Title/Summary) \_\_\_\_\_

( ) I will need this equipment \_\_\_\_\_

( ) I would like more information about the workshop.

Accommodations are available with Topeka AAZK Chapter members.

( ) I would like accommodations for \_\_\_\_\_ number of people.

( ) I will stay at one of the motels in the Topeka area.

# THE STRUGGLE FOR SURVIVAL

## WHOOPIING CRANE POPULATION MAY DECLINE SLIGHTLY; U.S.-CANADIAN TEAM TRACKS BIRDS DURING MIGRATION

Four whooping crane chicks were raised in wild and captive flocks in 1981, a year which may see a slight population decrease despite intensive research to propagate the endangered species.

The highlight of this year's research is a first-time effort by the U.S. Fish and Wildlife Service and the Canadian Wildlife Service to radio track the main flock on their 2,600 mile fall migration from Canada's Wood Buffalo National Park to the Texas Gulf Coast. On 12 October, trackers reported one of the chicks hit a power line in north Saskatchewan and died several days later of apparent spinal injuries.

While researchers expressed regret over the loss of the young crane, they emphasized that had the flock not been tracked, the fate of the bird probably would have remained a mystery. Service scientists stress that the more they learn about mortalities, the better prepared they are to prevent them.

The Wood Buffalo flock produced three chicks this year during an exceptionally dry nesting season that saw increased egg losses to predatory animals. In August, brush fires swept through the forests and marshes, eventually destroying some 70 per cent of the cranes' nesting habitat. However, the chicks escaped the ravaged area with their parents and the rest of the flock.

All three chicks in the Wood Buffalo flock were captured and fitted with radio transmitters by U.S.-Canadian researchers several weeks before the fire. Trackers followed the first two chicks to leave Wood Buffalo; the first was being tracked by a team of U.S.-Canadian biologists in a Canadian plane when it hit the power line. In Southern Saskatchewan an American plane carrying a Canadian biologist, the only tracker to follow the entire route, was standing by to pick up the trail, with a ground research team also following the flock. The same tracking procedures now are being used to track the second chick, last reported to be near Texas. Earlier, trackers found that the tagged chick had covered 470 miles in one day at altitudes of up to 9,000 feet.

As the international team began monitoring the main flock, other researchers recaptured a captive-reared female whooper set free last spring at Grays Lake National Wildlife Refuge in Idaho. The female had been transported to Idaho from the Patuxent Wildlife Research Center near Washington, D.C., as a possible mate for a lone male raised by sandhill crane surrogate parents.

# Conference.....82

## SECOND CALL FOR PAPERS

Papers are requested for the 1982 AAZK National Conference. The number of papers will be limited. Suggested topics are: Climate as a formative factor in

- a. The art of Zoo Keeping (eg. husbandry techniques under climate extremes.)
- b. Exhibit Design
- c. Zoo Architecture
- d. Visitor Enjoyment
- e. Seasonal animal management (eg. breeding, nutrition, holding)
- f. Pest Control

Papers will be limited to 20 minutes each with an additional 5 minutes for questions. Please submit an outline or abstract by 15 July, 1982. The registration fee for the conference will be reduced for those people whose papers are accepted for presentation. Send papers to: Fran Turner, AAZK Conference Coordinator, Metro Toronto Zoo, P.O. Box 280, West Hill, Ontario M1E 4R5 Canada.

## CONFERENCE NOTES AND REMINDERS

- Mail takes extra time between the U.S.A. and Canada so register early.
- The Canadian dollar fluctuates at about 20% below the value of the American dollar. Actual room prices in October may be slightly different than those presently quoted.
- All AAZK members planning to attend the Toronto Conference are asked to remember to bring an item for the auction. The auction is not only a lot of fun for everyone, but helps to offset the Conference expenses. So bring an animal-related item from your zoo and be represented at the Auction.

## TENTATIVE AGENDA FOR THE 8th NATIONAL CONFERENCE AMERICAN ASSOCIATION OF ZOOKEEPERS

### Sunday, October 3

Board Meeting  
Registration  
Icebreaker - Top of the CN Tower  
'The tallest free-standing structure in the world'

### Monday, October 4

Welcome and Introduction  
Tour of Metro Toronto Zoo  
Zoo Lunch  
Workshops  
Free Evening

### Tuesday, October 5

Papers  
Lunch  
Papers  
Volleyball  
Dinner on the Town

### Wednesday, October 6

Papers  
Free afternoon - tour to Peterborough Zoo, tours and workshops at the Metro Toronto Zoo  
Auction

### Thursday, October 7

Papers  
Lunch  
General Membership meeting  
Banquet at Casa Loma - 'an authentic medieval castle'

Hosted by the Metro Toronto Zoo AAZK Chapter at:

The Chelsea Inn  
33 Gerrard St. W.  
Toronto, Ontario, Canada



# 1982 AAZK NATIONAL CONFERENCE REGISTRATION



Please cut out, fill in and return the forms with your fee to:

Fran Turner  
Conference Coordinator  
Metro Toronto Zoo  
P.O. Box 280, West Hill  
Ontario, Canada M1E 4R5

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## HOTEL RESERVATION REQUEST (Chelsea Inn, Toronto, CANADA)

Name: \_\_\_\_\_ Arrival Date: \_\_\_\_\_  
Address: \_\_\_\_\_ Arrival Time: \_\_\_\_\_  
City: \_\_\_\_\_ State/Province: \_\_\_\_\_  
Postal/Zip Code: \_\_\_\_\_ No. of Hotel Nights: \_\_\_\_\_  
Phone No.: \_\_\_\_\_ Departure Date: \_\_\_\_\_

## ACCOMODATIONS REQUESTED

RATES: (per person) Single Occupancy - \$41.00 U.S.  
Double Occupancy - \$27.00 U.S.

Special request to be matched with a Zoo Keeper Roomate: \_\_\_\_\_

Male: \_\_\_\_\_ Female: \_\_\_\_\_ Special Instructions: \_\_\_\_\_

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PLEASE SEND ONE NIGHTS'S DEPOSIT WITH FORM.

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## CONFERENCE REGISTRATION

Name: \_\_\_\_\_ AAZK Membership Status and Fee:  
Address: \_\_\_\_\_ Member OR Spouse.....\$50.00 U.S.  
City: \_\_\_\_\_ State:Prov. \_\_\_\_\_ Non-Member.....\$60.00 U.S.  
Zip/Postal Code: \_\_\_\_\_ Phone# \_\_\_\_\_ Late Registration..\$10/extra  
after Aug. 16, 1982  
Zoo: \_\_\_\_\_ TOTAL fees enclosed: \_\_\_\_\_

Area of Interest: \_\_\_\_\_  
(One-day rates available - contact Fran Turner for details)

Will be submitting paper? ☐ YES ☐ NO Transportation  
(On acceptance of paper \$20.00 will be refunded                      (car/plane etc.): \_\_\_\_\_

MAKE CHECKS PAYABLE TO "AAZK - METRO TORONTO ZOO CHAPTER" DEADLINE FOR  
REGISTRATION: MONDAY, AUGUST 16, 1982.

*We are indebted to the AAZPA Newsletter for allowing us to reprint portions of this section from their "Positions Available" listing. This is a monthly service to us, for you.*

ANIMAL KEEPERS...several full-time positions available in various areas, especially seeking experienced elephant handler and trainer. Responsible for care, feeding and handling of collections plus maintenance of animal enclosures and adjacent grounds. Degree in Animal Science or related field desired or may possess a combination of education and zoo experience. Salary commensurate with education and experience plus benefits. Send resume to Jerry Wallace, General Curator, Toledo Zoological Gardens, 2700 Broadway, Toledo, Oh 43609.

CURATOR/HUSBANDRY...responsible for operation of Husbandry Department, including fish, mammal, bird and horticulture sections. Must have Master's Degree in Marine Biology or related field and at least five years' experience in major aquarium or oceanarium. Salary commensurate with education and experience, plus benefits. Send resume to William S. Flynn, Assoc. Director, National Aquarium in Baltimore, Pier 3, 501 E. Pratt St., Baltimore, MD 21202. EOE.

ZOO ANIMAL NUTRITIONIST...responsibilities include supervision of commissary staff and operations; monitoring nutritional quality of food; cost/benefit analysis of alternative products and methods; diet evaluation and cooperation with staff regarding nutritional requirements. M.S. or Ph.D. in Animal Nutrition required. Zoo experience helpful. Salary commensurate with experience, plus benefit package. Send resume to Personnel Department, Brookfield Zoo, Brookfield, IL 60513.

GENERAL CURATOR...responsible to Director for operation of animal department personnel. Must be highly skilled in supervision and have good knowledge of zoo animal husbandry, B.S. Degree or equivalent required. Applications accepted until 20 April 1982. Send resume to Daniel A. Baffa, Director, Mesker Park Zoo, Bement Avenue, Evansville, IN 47712.

*The following "Positions Available" were sent directly to the Forum for inclusion under "Opportunity Knocks."*

PACHYDERM KEEPER...to participate in husbandry program of Asiatic and African elephants, rhinoceros and hippopotamus and to assist trainer with an elephant program that includes public demonstrations. Elephant experience desirable. Salary \$6.09-\$6.36/hour, plus excellent fringe benefits. Submit resumes to: Herbert Smith, Personnel Supervisor, Oklahoma City Zoo, 2101 NE 50th, Oklahoma City, OK 73111.

PACHYDERM KEEPER...to train, handle and maintain both African and Asian elephants. Responsibilities include daily maintenance, building up-keep, cooperation in health and behavioral research, and participation in public education demonstrations. Area of responsibility also oncludes rhinoceroses, tapirs, hippos and other animals. Excellent salary and fringe benefits. Contact Personnel Department, Brookfield Zoo, Brookfield, IL 60513, (312) 485-0263.

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## AAZK MEMBERSHIP APPLICATION

Name \_\_\_\_\_ Check here if renewal [ ]

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International Members

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Individuals not connected  
with an animal care facility

\_\_\_\_\_ \$15.00 Affiliate  
Other staff and volunteers

\_\_\_\_\_ \$50.00 Contributing  
Organizations and individuals

U.S. CURRENCY ONLY PLEASE

### Directory Information

Zoo \_\_\_\_\_ Work Area \_\_\_\_\_ Special Interests \_\_\_\_\_

Mail this application and check or money order, payable to American Association of Zoo Keepers, to: AAZK National Headquarters, Topeka Zoo, 635 Gage Blvd., Topeka, KS 66606.

Membership includes a subscription to the *Animal Keepers' Forum*. The membership card is good for free admission to many zoos and aquariums in the U.S. and Canada

### INFORMATION FOR CONTRIBUTORS



*Animal Keepers' Forum* publishes original papers and news items of interest to the Animal Keeping profession. Non-members are welcome to submit articles.

Articles should be typed or hand-printed. All illustrations, graphs and tables should be clearly marked, in final form, and should fit in a page size of no more than 6" x 10" (15 cm x 25½ cm.). Literature used should be cited in the text and in final bibliography. Avoid footnotes. Include scientific names.

Articles sent to *Animal Keepers' Forum* will be reviewed for publication. No commitment is made to the author, but an effort will be made to publish articles as soon as possible. Those longer than three pages may be separated into monthly installments at the discretion of the editorial staff. The editors reserve the right to edit material without consultation unless approval is requested in writing by the author. Materials submitted will not be returned unless accompanied by a stamped, self-addressed envelope.

Telephoned contributions on late-breaking news or last minute insertions are accepted. However, phone-in contributions of long articles will not be accepted. The phone number is (913) 272-5821.

DEADLINE FOR EACH EDITION IS THE 15TH OF THE PRECEDING MONTH

*Articles printed do not necessarily reflect the  
opinions of the Animal Keepers' Forum editorial  
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Items in the publication may be reprinted. Credit to this publication is requested. Order reprints from the Editor.

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# Animal Keepers' Forum



*Dedicated to Professional Animal Care*

MAY 1982

Executive Editor: Mike Coker  
 Managing Editor: Susan Chan  
 Associate Editor: Connie Cloak  
 Editorial Assistant: Diana Brey

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*This month's cover art was drawn by Emlyn B. Smith. A graduating senior at Northland College in Ashland, WI, Emlyn has worked as a keeper in the Bird Department at the Audubon Park Zoo the past three summers. The inspiration for the drawing, according to Emlyn, came from the Zoo's Wild Bird Rehabilitation Program which is under the direction of Anne Marie Orłowski. Many thanks, Emlyn!*

# Scoops and Scuttlebutt

## NOMINATIONS FOR AAZK AWARDS DUE NEXT MONTH

Mike Crocker, Dickerson Park Zoo, and a member of the AAZK Awards Committee wishes to remind members that nominations for 1982 AAZK awards for Excellence in Zoo Keeping and Certificate of Merit for Zoo Keeper Education are due by 15 June 1982. The Awards Committee, consisting of five people, will independently review each nominee to select the winners and will present awards at the AAZK Annual Conference, 3-7 October in Toronto, Canada. Nominations should be sent to: Mike Crocker, Awards Committee, Dickerson Park Zoo, Springfield, MO 65803. Guidelines for qualifications and nomination and selection procedures were printed in the March 1982 issue of *Animal Keepers' Forum*.

## CALL FOR PAPERS ISSUED FOR UPCOMING ELEPHANT WORKSHOP

Persons interested in presenting papers at the Third Annual Elephant Workshop to be held 9-10 October 1982 at Dickerson Park Zoo, Springfield, MO., are requested to contact the Program Committee. Format for the workshop is to be informal, but topics must relate to the management and breeding of elephants in captivity. Ideas, abstracts, and/or papers may be sent to: Elephant Workshop Committee, Dickerson Park Zoo, 3043 North Fort, Springfield, MO 65803.

## ONLY IN ZOO BIZ CAN.....

Can a full grown Bengal tiger and an "I've lost 10 years off my life" opossum become traveling companions? Such was the case recently when the staff at the World Famous Topeka Zoo was loading the Bengal tiger it had been holding for the Sedgwick County Zoo in Wichita. Unbeknowns to staff members, a park resident possum had chosen that particular crate for a cozy sleeping spot and he/she was not discovered until the tiger was securely ensconced in the crate ready for its three-hour journey south. Unable to move the tiger nor dislodge the possum (who at this point was playing "very dead") the Topeka staff sent the unlikely pair on their way. Both arrived at Wichita and following the true tradition of generosity and cooperation among zoos, Sedgwick County Zoo Director Ron Blakely immediately dispatched the much-relieved possum back to Topeka including a note thanking Topeka Zoo Director Gary K. Clarke for his thoughtfulness in providing a traveling companion for the Bengal. The possum, later nicknamed "Lucky" was released into the "wilds" of Gage Park.

# Births & Hatchings

## MARCH BIRTHS AT THE SAN ANTONIO ZOO.....Cindy Roger

The San Antonio Zoo is pleased to announce the following births and hatchings for March. In the Bird Department: 1 Palawn Peacock Pheasant, 2 Grey Peacock Pheasant, 3 Black-breasted Button Quail (DNS), 3 Diamond Dove, 2 Duyvenbode's Lory, 3 Galah, 1 Peach-faced Love Bird, 4 Roadrunner, 2 Green Wood Hoopoe, 1 Arrow-marked Babbler, and 1 Red-cheeked Cordon Bleu hatched. The Large Mammal Department produced 2.0 Eland (1 DNS), 0.1 Addax, 1.2 Scimitar-horned Oryx (0.1 DNS), 1.0 Grant's Gazelle, 1.0 Speke's Gazelle (a first in our collection), 1.0 Topi (DNS), 1.0 Amgolan Springbok, 1.1 Dama Gazelle (0.1 DNS), 4.4 Arabian Sand Gazelle (2.2 DNS), 1.0 Kirk's Dik Dik, 3.4 Aoudad, and 1.1 Mouflon (1.0 DNS). The Small Mammal Department produced 1.0 Aardvark and 0.2 Three-banded Armadillo (DNS). An uncounted number of Koi, 42 African Lyretail Cichlid (30 DNS), and 2 Fresh Water Shrimp hatched in the Aquarium.

## DALLAS ZOO'S MARCH BIRTHS AND HATCHINGS.....Penny Tadman

The Dallas Zoo produced the following births and hatchings during the month of March: Birds - 4 Gouldian Finch, 1 White-cheeked Touraco, 3 Junglefowl; Mammals - 1 Axis Deer and 1 Red Kangaroo; Reptiles - 4 Mexican Lance-headed Rattlesnake.

## TOPEKA ZOO ANNOUNCES RECENT BIRTHS.....Mike Coker

The Topeka Zoo announces the following recent births and hatchings: 0.1 Eland, 0.0.1 Scrub Wallaby and 2 Rothchild's Mynahs. The zoo's two pairs of American Golden Eagles are both incubating eggs at this writing. The Topeka Zoo was the first zoo to ever hatch and raise American Golden Eagle chicks successfully in captivity.

## SAN DIEGO ZOO/WILD ANIMAL PARK LISTS BIRTHS AND HATCHINGS...Connie Carson

In October 1981 a baby Okapi was born at the Wild Animal Park (WAP). The female baby, named "Bambesa" after a town in Zaire, is a very rare birth in the zoo world. Only 55 Okapi are in zoos worldwide, with only 15 in the U.S. The mother is "Kamina" on loan to the WAP from Cheyenne Mountain Zoo in Colorado Springs. The father, "Mokolo" was born at the San Diego Zoo (SDZ) in 1973. Okapi are native to dense forests in Zaire and were unknown to the scientific community until 1901. No one knows how many may be left in the wild. SDZ and WAP are working with other zoos to establish an international breeding program for this species.

On 16 January 1982, a female Sumatran Orangutan was born at SDZ. She was named "Bo" after her father "Otis" and mother "Bubbles". "Bubbles" is on breeding loan from the Phoenix Zoo. "Bo" is her third baby since her arrival at SDZ and all have been handraised. This baby belongs to Phoenix. Other January births included: a male Gerenuk at WAP, a male Hanuman Langur at SDZ and a female African Bush Elephant at WAP. The calf's parents are "Sharpi" and "Chinco".

February 1982 produced a male Bornean Orangutan named "Kent". His father is our zoo-born young male "Ken-Allan" and his mother is "Mary-Fred". He

## BIRTHS AND HATCHINGS, *continued*

is being hand-raised. "Kent" is the 26th Orang born at SDZ. On 2 February Pygmy Chimpanzee "Linda", mother of one-third of the 30-odd members of this rare species in captivity worldwide, was sent to Yerkes Primate Center in Atlanta on breeding loan. The next day, her daughter "Louise" gave birth to a female, "Lenore", and is caring for her. "Louise" is a hand-raised female.

March 1982 births included: a female Bairds Tapir at SDZ, a female Indian Hog Deer at WAP, eight Addax within the first 24 days of March at WAP, a male Arabian Oryx (the 82nd born at the WAP), a Cheetah at WAP which is being hand-raised. The cubs parents are father "Middleman" born at the WAP in 1976 and mother "Nyere" born at Lion Country Safari in 1977. Birds hatched included: Yellow-streaked lorries and Red-shining parakeets. The lorry chicks may be the first hatchlings of this species in the Western Hemisphere. The new babies are being hand-raised by keeper John Mitchell. Our beautiful male Buton Hornbill now has a lovely lady waiting for him in quarantine. The female is on breeding loan from the Jakarta Zoo in Indonesia. From January to March, nearly 70 Emu have hatched.

April births included: three Scottish Wildcat kittens. Two died and one is in good health and being hand-raised. She is the seventh of her species born here over the years. A male Koala, born about seven months ago, is spending alot of time outside of mom's pouch. He's the first born to one of the six female Koalas in the 1981 shipment from Lone Pine Koala Sanctuary and the 14th Koala at the zoo (seventh male). Other births included a female Arabian Oryx (number 83 at WAP), a male Addax, an Addra Gazelle, a Colobus monkey, on exhibit with his mother.

April hatchings include: 4 Darwin's Rhea, the 75th Emu, two Golden Conures, four Leadbeaters Cockatoo, three button Quail, three Rock Peplars Parakeets and one Black Bustard.



## **Coming Events**

### THIRD INTERNATIONAL SNOW LEOPARD SYMPOSIUM

June 23-25, 1982

Seattle, WA

For further information on the Symposium contact Helen Freeman, Woodland Park Zoological Gardens, 5500 Phinney Ave. North, Seattle, WA 98103. (206) 625-4550.

### THIRD ANNUAL ELEPHANT WORKSHOP

October 9-10, 1982

Springfield, MO

The Third Annual Elephant Workshop will be held at the Dickerson Park Zoo. Topics discussed will include management and breeding techniques for elephants in captivity. See "Call for Papers" under SCOOPS/SCUTTLEBUTT.

# Letters To The Editor

To the Editor:

The Endangered Species Act is in serious trouble. This 1973 act, now due for reauthorization, made the United States a world leader in conservation and served as a model for much other legislation, both national and international. Major environmental groups such as the Audubon Society, World Wildlife Fund-U.S. and the Wilderness Society are in agreement that reauthorization faces a stiff battle from the timber, mining, and chemical industries, among others. Industries' efforts aim at weakening a variety of the act's provisions, directly affecting the future of many species.

At its February meeting, the Portland Chapter of the AAZK, meeting at the Washington Park Zoo, agrees that this act in its present form is essential to the protection of threatened and endangered wildlife in both the U.S. and the rest of the world. We voted at that meeting to send \$500 to the National Audubon Society, earmarked for this issue. Additionally the Chapter will subscribe to the Endangered Species Act Reauthorization Bulletin, sponsored by a coalition of over 20 conservation groups. This bulletin will keep us informed on the efforts of this coalition to keep a strong Endangered Species Act.

Five hundred dollars is a lot of money for our chapter: we did not invest it lightly. We feel our "dedication to professional animal care" must extend beyond the zoo exhibit to the wild habitat.

Other chapters wishing to subscribe to the Bulletin can do so by sending \$5 to: Marcia Downs, National Audubon Society, 645 Pennsylvania Ave., SE, Washington, DC 20003.

We urge other AAZK chapters to stay informed and take an active role in this critical issue. Money for lobbying may not be available to your chapter, but 20¢ stamps on letters to senators and representatives are also effective.

Ann Littlewood  
for the Portland AAZK Chapter



## Information Please

Information is needed on the occurrence of Corynebacterium abscesses in California Sea Lions and any other pinnipedia and all circumstances surrounding the abscess occurrence. Please reply to Connie Sweet, Assistant Supervisor of Animal Services, Lafayette Zoological Park, 3500 Granby St., Norfolk, VA 23504.

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A group of citizens in Northern Colorado is attempting to start a small zoo in our area. We would like information from anyone who has been involved in a similar project on what was done to get their zoo operating. We need information on all aspects of creating a zoo. Please send information to : Ann Norton, 510½ E. Elizabeth St., Ft. Collins, CO 80524.

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**INFORMATION WANTED:** Information on elephant foot care. Please contact Craig Landwehr, Zoo Keeper, Lincoln Park Zoo, 2220 N. Canyon Drive, Chicago, IL 60614.

# The Endangered Species Act

## THE ENDANGERED SPECIES ACT REAUTHORIZATION -- PART II

Reauthorization of the Endangered Species Act will involve review by the Congress with advice from the Administration, private organizations and individuals. The first Congressional hearings were held in early December 1981. Additional hearings will be held into the Spring of 1982.

The Reagan Administration has been preparing its position on reauthorization since early 1981. On 22 January 1981, the President established a cabinet-level Regulatory Review Task Force to review regulations identified as being unnecessarily burdensome. Since regulations implementing the Endangered Species Act have been targeted by development interests, the Administration decided to review them. Because the ESA is scheduled for reauthorization in 1982, the Department of the Interior has combined its regulatory review with a review of the law itself. Anti-conservation interests have given Administration officials draft amendments to gut every important provision of the Act.

The Department of the Interior may seek to eliminate the Act's protection of plants and invertebrate animals only, eliminate critical habitat designations, make federal agency responsibilities optional under Section 7, make it more difficult to list species as endangered or threatened, reduce protection of species outside the U.S., and limit the rights of citizens to ensure that the Act is rigorously enforced.

### Defending the Endangered Species Act

The Center for Environmental Protection, along with over 25 other conservation organizations, is working to convince the Administration and Congress not to weaken the ESA. As the focus of this effort, eleven fundamental objectives have been identified which we urge everyone to work for.

Briefly stated, our goal is to secure a strong legal base for the effective conservation and recovery of plants and animals that are now, or may foreseeably become, in danger of extinction, and to ensure that the Endangered Species Act furthers the purposes and policies that it now articulates. To that end the following specific objectives are sought in the reauthorization of the ESA in 1982.

1. The protection of the ESA must continue to be available for all endangered and threatened animals and plants.
2. The ESA must provide an efficient means of listing species which, as now provided by the Act, are endangered or threatened for any reason, based upon the best available scientific and commercial data.
3. The ESA must provide for adequately funded grants to states for the conservation of endangered and threatened species, encourage cooperative agreements between state and federal agencies, and recognize the right of states to enact and enforce laws more restrictive than the Act itself.
4. The ESA must continue to provide for international cooperation in the conservation of endangered and threatened species, as currently provided under Section 8, as well as for the implementation of international conservation agreements.
5. The ESA must continue to authorize the acquisition of habitat for endangered and threatened species.
6. The ESA must continue to impose on all federal agencies a duty, independent of the other roles or functions of such agencies, to carry out programs of conservation of listed species and such duty must continue to be defined broadly to include the use of all

## THE ENDANGERED SPECIES ACT REAUTHORIZATION PART II, Continued

measures necessary to bring species to the point at which the protection is no longer required.

7. The procedures and requirements of Section 7 (a) relating to federal agency actions must remain unchanged. The biological opinions respecting the compatibility of particular actions with such requirements must continue to be the responsibility of the U.S. Fish and Wildlife Service and the National Marine Fisheries Service and must be based on strictly biological considerations.
8. Exceptions to the requirements of Section 7 (a) must only be authorized with respect to actions for which there has been a good faith effort, through consultation, to avoid endangered species conflicts and for which there is a clearly demonstrated regional or national economic necessity and the absence of reasonable alternatives, with such determinations to be made by a responsible administrative body of high level officials after public, impartial and comprehensive inquiry into the action and its possible alternatives, and provided that all reasonable measures to mitigate the effects of such actions are required to be undertaken.
9. The opportunity for meaningful public participation in implementation of the ESA through petitions for the listing of particular species and the initiation of citizen lawsuits must be preserved.
10. The ESA must be adequately funded to ensure that its purposes are effectively carried out, that it is vigorously enforced, and that the states develop effective complementary conservation programs.
11. The criminal penalty provisions of the ESA must be strengthened to make them comparable to those of the Lacey Act as it was amended in 1981.

In order to accomplish the objectives set forth in these eleven principles, the Center for Environmental Education, with the other cooperating organizations, are producing the following materials which may be of interest to many people who care about endangered species.

1. A periodical newsletter called *the Endangered Species Act Reauthorization Bulletin* which will be distributed until the ESA is reauthorized. The bulletin explains why we need species, how the ESA works, how you can help to keep it strong, and recent information on the reauthorization process;
2. A speaker's kit with sample speeches and fact sheets describing the reasons to protect endangered species, the species listed under the ESA, the Section 7 consultation process and the economic effects of the ESA, the problem posed by illegal trade of listed species, and responses and criticisms of the ESA;
3. A regular press packet to several thousand newspapers and magazines containing feature stories about the ESA; and
4. Endangered Species news releases with a press kit, pamphlets and other educational materials about the ESA.

The cooperating organizations are also in the process of organizing committees of scientists, business people, and other professionals who support the conservation of endangered species. In addition, an extensive grassroots effort has begun. Groups with local chapters are seeking Endangered Species Act Reauthorization coordinators. The cooperating organizations urge individuals and members of other organizations to form reauthorization coalitions and networks in all congressional districts. Chapter or district coordinators will be asked to organize meetings, distribute information, organize letter writing and telephone campaigns, work with the electronic and print media, and coordinate with other groups that are concerned about the future of our nation's wildlife.




## THE ENDANGERED SPECIES ACT REAUTHORIZATION PART II, Continued

Representatives of the cooperating organizations in Washington will keep in touch with the state and local coordinators. Our goal is to have at least 250 people in each of the key congressional districts willing to contact their Congressional Representatives. The cooperating organizations in Washington will appeal to their members and supporters throughout the country to join in this effort.

Finally, the cooperating organizations will hold frequent meetings with Senators and Congressmen to assess their views of the ESA and its reauthorization. Each Congressional office is already receiving the newsletter and other relevant materials. Subsequent issues of the newsletter will report on how members of Congress voted on critical subcommittee, committee, and floor votes concerning the ESA.

### What Can You Do?

Reauthorization of a strong and effective Endangered Species Act will not be easy and will require the efforts of a large number of individuals and organizations. If you are willing to give your active support to the reauthorization process by writing letters, making phone calls, coordinating local reauthorization efforts, or just spreading the word among friends and associates, please write: ESA Reauthorization, Center for Environmental Education, 624 9th Street, NW, Washington, DC 20001. 

*(Editor's Note: Part II of this special series on the reauthorization of the Endangered Species Act has been excerpted from a Special Supplement to The Whale Report, Vol. 6, No. 1, Winter 1982. Published by the Center for Environmental Education/Whale Protection Fund, 624 9th St., NW, Washington, DC 20001, The Whale Report is sent free of charge to all Whale Protection Fund supporters and other interested parties. The following information was sent from Legislative Coordinator Kevin Conway and is excerpted from the National Wildlife Federation Conservation Report. S.C.)*

### House Holds First Hearing on Endangered Species Act Reauthorization

On 22 February 1982, the Subcommittee on Fisheries and Wildlife Conservation and the Environment, House Merchant Marine and Fisheries Committee, held its first oversight hearing on the Endangered Species Act. Witnesses presented testimony regarding the state role in endangered species programs, international issues and the scientific value of endangered species.

The first panel of witnesses addressed issues of concern to the states. William Huey of the New Mexico Dept. of Natural Resources, Gerard Bertrand of the Massachusetts Audubon Society, and Lonnie Williamson of the Wildlife Management Institute called on the Congress to restore funding to the Act's Section 6, which provides federal matching funds for state endangered species programs. Huey suggested an amendment to require a minimum percentage of the annual ESA appropriation be earmarked for state use.

John Newsom, Louisiana Dept. of Wildlife and Fisheries, argued for greater state participation in the listing and delisting of species. He averred that states are usually more knowledgeable about resident species than is the federal government, which often must rely heavily on state data.

The second panel addressed the bobcat controversy. In 1977, the bobcat was listed on Appendix II of CITES. As a result, bobcat pelts cannot be exported until a designated U.S. scientific authority (the Fish and Wildlife Service) determines that the activity will not harm the species'

survival. The Service had issued guidelines specifying the minimum biological information that it needs from state agencies to make a "no detriment" decision. However, a court rejected the guidelines, prohibiting export until new ones that require a "reliable estimate of the total number of bobcats" from each state wishing to export pelts are issued.

Randy Bowman, Wildlife Legislative Fund, and Steve Boynton, American Fur Resources Institute, joined several members of the first panel to ask the Congress to reverse the court decision. They stressed that estimates of absolute numbers are expensive, extremely difficult to obtain, and rarely necessary for responsible wildlife management. Richard Jackowski, USFWS, indicated the agency had petitioned other countries participating in CITES to remove U.S. and Canadian bobcat populations from Appendix II on the basis that its original listing was inappropriate.

Boynton and Huey argued for greater state involvement in CITES "no detriment" decisions, especially for resident species that are managed under a qualified state program and are not threatened or endangered. They also asked Congress to require that the U.S. object to a proposed listing of any domestic species under CITES if substantial evidence exists that the species is not threatened or endangered. (If the U.S. objected, the species could not be listed.)

Curtis Bohlen of the World Wildlife Fund-U.S. outlined a seemingly forgotten international treaty, The Convention on Nature Protection and Wildlife Preservation in the Western Hemisphere, that had been in effect since 1942. The Convention calls for cooperation between member nations in setting aside preserves and protecting animals and plants, especially migratory birds. He pointed out that the U.S. has not fulfilled its responsibilities for protecting plants, nor has it negotiated any migratory bird agreements in this hemisphere other than with Mexico and Canada.

Dr. Peter Raven of the Missouri Botanical Garden and Dr. Thomas Eisner of Cornell University concluded the hearing by discussing the potential values of endangered species. Raven emphasized the need to aggressively protect endangered plants: "Since 15 or more kinds of animals and micro-organisms exist for every single kind of plant, it may be assumed that the extinction of one kind of plant may, in turn, ultimately bring about the extinction of a dozen or even many more kinds of animals and micro-organisms." He pointed out that the most significant event in the last 230 million years of life, the extinction of 15% of the earth's biota at the close of the Cretaceous Period, will be completely overshadowed by current rates of extinction: twenty-five percent of the world's species will disappear during the lifetime of people now on earth.

The subcommittee will hold a second oversight hearing on 8 March at which the National Wildlife Federation will testify. That session will focus on the process for listing species and the protection afforded by ESA with respect to economic development.

--Conservation Report  
National Wildlife Federation



# Exhibit Options

## CARTER GIRAFFE BUILDING TO OPEN TO GENERAL PUBLIC AT NEW YORK ZOOLOGICAL PARK

*By*

*Mac McIntyre, ZooKeeper*

On 12 June 1982, the New York Zoological Park will be opening the latest of its new and innovative animal exhibits to the general public. The Carter Giraffe Building will house the Zoo's eleven Baringo Giraffes, twelve Grevy's Zebras, as well as three Bongos and five Cheetah. The building has three indoor exhibits and will be opened to visitors during the winter months. The exhibit is situated on approximately four acres of rolling hills on the Zoo's south end.

The giraffes are housed in a large indoor exhibit which is flanked by four adjoining smaller enclosures, two on each side. Two of these are used to house the bulls while the others are used as shift cages for the herd and birthing enclosures for expectant mothers.

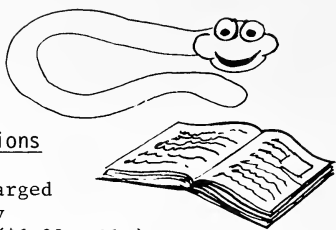
The entire back wall of the large indoor exhibit from floor to ceiling is a painted mural of an actual Savannah scene transferred from sketches made in Africa. The mural was painted with masonry paint over plaster and coated with two part catalytic polyacrylic urethane which protects the mural from licking giraffes while not endangering the animals. The floor, as in all of the exhibits and staffs, is brushed concrete with woodchips spread on it daily. Besides creating a nice appearance by blending in with the murals, the woodchips serve the practical purpose of waste absorption and facilitate daily cleaning.

To either side of the giraffe exhibit, practically encircling the winter visitor, are smaller indoor enclosures which will exhibit zebras and cheetahs. Each of these exhibits is also backed by beautiful murals. Also contained within the building are nineteen 10' x 10' stalls for the zebras, bongos and cheetahs. The stalls were constructed with pine-treated, non-toxic chromated copper arsenate. Natural light is utilized whenever possible by means of skylights and large windows on all sides of the building.

All animal waste is removed from the building by way of a below-floor level barn cleaner track. Because of all the labor saved by this barn cleaner, only one and a half keepers are required to carry out the daily routine. All of the animals, weather permitting, will be released daily into beautiful, spacious fields with multiple vantage points for the public. The giraffe's grassy field is a little over an acre in size with many trees and a small pond. The cheetahs and bongos' fields will each be 1000 sq.ft. while the zebras will spend their days down on their 6000 sq.ft. African Plains exhibit. Besides the outdoor exhibit yards, there are also large, secluded, off-exhibit yards for holding and breeding purposes.

Senior Keeper John Iaderosa introduced the giraffes and zebras last summer, thus enabling them and himself to become acclimated to the new surroundings before the exhibit was presented to the general public. Since transferring to the Carter Giraffe Building, three giraffe births and one zebra birth have taken place.

# Book Review



## Growth and Regulation of Animal Populations

By Lawrence Slobodkin, 1980. 2nd enlarged edition. xii + 234 pgs. Published by Dover Publications Inc., N.Y., N.Y. (\$6.00 ppbk.)

*Review by Randall Breitwisch  
Program in Tropical Biology  
Dept. of Biology  
University of Miami, Coral Gables, FL.*

This is a reprint of Larry Slobodkin's 1961 small classic in animal population biology. He had added a new preface, text notes, an updated supplemental bibliography, and an abridged version of a recent (1974) Quarterly Review of Biology article. Included are chapters on such fundamental ecological concepts and processes as species niches, population growth models, life tables, population regulation, population cycles, interspecies competition, predator-prey interactions, and community ecology. Theory (as it existed in 1961) is presented clearly, and general concepts are accompanied by numerous examples.

Slobodkin is a laboratory ecologist, and much of his book deals with his own lab studies and those of his colleagues. This is fitting; many of population biology's roots are anchored in lab work. But, zoo workers should be prepared to read about animals so small that they can't be seen without a dissecting scope or microscope!

Some of the models discussed are mathematically based, e.g. those of interspecies competition and predator-prey interactions. There is simply no other way to present these. The models may be scanned if the adjoining text is read carefully.

I found Slobodkin's text notes quite interesting because they are a window into a mature scientific mind...acknowledging previous predictions too bold, showing where new findings fit into or alter theory structure, etc. There are still a few incorrect statements, however. For instance, Slobodkin was an original proponent of "the earth is green" philosophy; the earth is green, therefore herbivores do not overeat food resources, therefore their numbers must be controlled by predators. We now look upon the earth not as green but as colored from a palette of morphine, caffeine, tannis, etc. Vegetation is laden with defensive poisons; the presence of green plants does not mean these are fully available to herbivores. In a larger sense, we still have little knowledge of what limits animal populations.

Zoo workers with a serious interest in animal ecology will benefit from reading Slobodkin's small book (especially if followed by more recent treatments). Doses of theory and empiricism mix well. One cannot live by field studies of African large mammals alone.

Finally, animal population ecologists will find perusal of Slobodkin's book a humbling experience. Despite the past twenty years of arduous data collection on a vast array of animal species, we have answered relatively few questions in population biology satisfactorily.



# Conference.....82

## NATIONAL CONFERENCE LISTS WORKSHOPS

The following is a preliminary list of workshops which we hope to present as part of the 1982 8th National AAZK Conference in Toronto. We shall be happy to look at any suggestions for additional workshops from those interested in attending.

Zoo Horticulture, Zoo Animal Nutrition (M.T.Z. has one of the two full-time zoo nutritionists in North America), Reptiles and Amphibians at M.T.Z., Herbivores at M.T.Z., Carnivores at M.T.Z., Elephants at M.T.Z., Birds at M.T.Z., Fish at M.T.Z., Camel Training at M.T.Z., Tour of the Animal Health Unit, Women in Zoos and Keeper Safety.

Please submit ideas for workshops to Fran Turner, AAZK Conference Committee, Metro Toronto Zoo, P.O. Box 280, West Hill, Ontario M1E 4R5 Canada.

## CALL FOR PAPERS FOR 1982 CONFERENCE

The Metro Toronto Zoo Conference Committee would like to remind all AAZK members that 15 July is the deadline for submitting abstracts for papers to be presented at the 1982 conference. A list of suggested topics can be found on page 55 of the March 1982 AKF. Send abstracts or outline to Fran Turner, AAZK Conference Committee, Metro Toronto Zoo, P.O. Box 280, West Hill, Ontario M1E 4R5, Canada.

## CONFERENCE AUCTION

The Metro Toronto Zoo Chapter would like to remind everyone planning to attend the 1982 Conference that an animal-related item from their zoo or community for use in the auction would be greatly appreciated. Please bring any items when you come up; there is no need to send them in advance.

## REMINDER

The Conference Committee would also like to remind interested individuals to submit all queries, papers and outlines and registration forms as early as possible because of the extra time involved in mail deliveries from the U.S. to Canada.



Fran Turner  
Conference Coordinator  
Metro Toronto Zoo  
P.O. Box 280, West Hill  
Ontario, Canada M1E 4R5

Name: \_\_\_\_\_ Arrival Date: \_\_\_\_\_  
Address: \_\_\_\_\_ Arrival Time: \_\_\_\_\_  
City: \_\_\_\_\_ State/Province: \_\_\_\_\_  
Postal/Zip Code: \_\_\_\_\_ No. of Hotel Nights: \_\_\_\_\_  
Phone No.: \_\_\_\_\_ Departure Date: \_\_\_\_\_

PLEASE SEND ONE NIGHTS'S DEPOSIT WITH FORM.

MAKE CHECKS PAYABLE TO "AAZK - METRO TORONTO ZOO CHAPTER" DEADLINE FOR  
REGISTRATION: MONDAY, AUGUST 16, 1982.

# Great Ape ~~Academy~~ <sup>monium</sup>



## GREAT EXPECTATIONS AROUND AT NZP GREAT APE HOUSE

"I've got stupendous news for you! We're one step closer to baby gorillas." That's the message Great Ape House keeper Melanie Bond conveyed to Dr. Reed on 26 January, the day the gorillas Nikumba (male) and M'wasi (female) bred for the first time.

Copulation occurred four times in three days and, as far as we know, this was the first breeding of any of our gorillas in eight years. It's exciting news especially since the breeding occurred just a little more than one year after the gorillas moved into the Great Ape House, their new facility specifically designed to encourage reproduction. Hopefully breeding activity will continue and result in baby gorillas. Prospects are good. In their most recent physical examinations, the females M'wasi and Femelle showed evidence of reproductive cycling (scars on the ovaries that indicate ovulation). Behavioral evidence in Sylvia, the new female from the Baltimore Zoo, indicates that she is also capable of producing offspring.

M'wasi is a 19-year-old lowland gorilla who has been on loan from the Bronx Zoo since 11 June 1979. She last became pregnant in 1973. The baby was delivered by Caesarean section but did not survive. M'wasi has not given birth since then and, until her encounter with Nikumba on 26 January, she had not bred at NZP. If she is pregnant, NZP keepers and veterinarians will closely monitor her condition to determine the date of delivery. Should a Caesarean be necessary again, all hope is not lost. Successful Caesarean sections have been performed on both gorillas and orangutans.

Twenty-nine-year-old Nikumba arrived at the National Zoo on 24 February 1955. He has sired four offspring, including our own Tomoko. For the past ten years he has spent much of his time with Femelle. This match resulted in the birth in May 1972 of Mopi, now on loan to the Bronx Zoo. A miscarriage occurred the following December. From that time on, their interest in each other has waned.

When the gorillas moved into the Great Ape House in September 1980, they were gradually introduced to each other so that the two females could eventually live together along with one male. The introductions have been successful and the animals have spent time with one another on a rotating basis.

For the past few weeks, Nikumba has been separated from Femelle. For a few days prior to 26 January, he had also been separated from M'wasi but the two spent so much time looking at each other through the doors of their enclosures, that Melanie wondered what was going on between them. She put the pair together to find out and, within one minute, a breeding took place.

After all this time, why did M'wasi and Nikumba finally mate? It's impossible to know for sure. "There are so many variables to account for," remarked Melanie. "It's like trying to explain why two people fall in love."

We can only hope that the final result will be a baby gorilla.

*Reprinted from Tigertalk, February 1982, a newsletter produced by the Public Affairs Office of the National Zoological Park/Smithsonian Institution. Editor: Ilene Ackerman.*



# ...Education

## WILDLIFE PRESERVATION TRUST PROFESSIONAL TRAINING PROGRAM

Purpose: To train individuals in the techniques of captive breeding of a variety of endangered species so that they can advance the cause of endangered species work and animal conservation in their respective countries.

Background: The Wildlife Preservation Trust is an international non-profit organization dedicated to the support of captive breeding of endangered species. In this capacity we initiate and support projects in a variety of areas including captive breeding projects, field surveys, rescue missions, research and education. The main facility for the Trust's work is located on the island of Jersey, Channel Islands. This subtropical facility is both a zoo and breeding/research facility for endangered species, and has a fine collection of over 50 species of birds, mammals and reptiles. The International Training Center is the only educational facility in the world for training in captive breeding and endangered species work; it combines dormitory, classroom and research facilities for students and staff.

Program: The training program consists of 16 weeks of intensive internship with all divisions of the zoo facility. Trainees work in close contact with zoo staff in all phases of animal keeping and breeding. Each trainee spends two weeks in each section and a final two weeks on an independent study project. Daily duties are supplemented with weekly seminars on a variety of topics.

Eligibility: The program is designed for individuals with previous practical experience with animals: zoo and animal center staff and post-graduates in conservation-related fields.

Application: Applications may be obtained from the address below. Selection is made in July of each year. Applications should be submitted by June 1st for training beginning the following year.

Dates: Starting date is by arrangement.

Location: Jersey, Channel Islands, British Isles

Fees: Tuition is free. Room and board costs are L35 (approximately \$80) per week. Trainees are responsible for air fare to and from Jersey, Channel Islands. As of 1 January 1982, this cost was approximately \$650 round trip (Apex).

For application and further information write or call:

Jon M. Jensen, Executive Director  
Wildlife Preservation Trust International  
34th Street and Girard Avenue  
Philadelphia, PA 19104  
Telephone: 1-215-222-3636





# Reptile Amphibian potpourri

## RELEASE OF CAPTIVE REPTILES

By

Ted Daehnke, Reptile Keeper  
California Alligator Farm

We are occasionally faced with disposing of reptiles it is no longer possible to keep. One common solution is release into the wild. This must be done carefully if we are to avoid harming populations already present at the release site. An undisturbed ecosystem is usually in very delicate balance, supporting the maximum number of species and individuals possible on a long-term basis. Adding a new species can destroy this balance and cause fluctuations which may take many years to stabilize and the site may never return to its original structure. Adding individuals of a species already present will cause less disturbance, but can result in the numbers of that species fluctuating above and below the ideal number for a few years. The important point is that in both cases there is little chance that the release will improve the situation.

Unfortunately, there are few undisturbed ecosystems left today. Most populations close to urban areas are subject to loss from collecting, road kills and predation by domestic animals. This mortality wasn't present during the evolution of these species and they may not be able to compensate for the loss. In these disturbed areas, the release can make up for some of this mortality. Even in disturbed areas care must be taken to avoid harm to the existing populations. Populations evolve very closely to a specific locality and two apparently identical individuals captured only a few miles apart may belong to completely different gene pools. The genetic diversity within a particular gene pool constitutes that populations' options in dealing with the environment over a period of many generations. By introducing an individual from outside the gene pool, you may be introducing genes which do not reduce the chances of that individual's survival, but may at some future date reduce the chances of the population's survival.

It is still possible to release animals into the wild. We can reintroduce them into the gene pool from which they were removed. By keeping careful records it is possible to release the individual very near where it was originally captured. If we hope to release captive-bred animals it is necessary to capture both parents from the same general area and release the offspring in this area.

Another alternative is to release the animal in an area that is within the historical range of the species, but no longer sustains a population. The specimen may not be as well adapted to the area as the original population, but it is better than nothing. The third alternative is to use a site so thoroughly disturbed that it cannot reasonably be expected to ever return to its original state. This site should contain no rare species which might be affected by the release and be sufficiently isolated that the released animal cannot reach less disturbed areas. By exercising a little common sense, it is possible to establish small populations far from their native range. These isolated populations could someday prove important in re-establishing these animals in their native habitat.



# A New Journal

# ZOO BIOLOGY

## Volume 1, four issues, 1982

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**ZOO BIOLOGY** will be published quarterly. Manuscripts will be reviewed within one month of receipt and will typically be published within four to eight months after final acceptance. The results of reviews, along with acceptance, suggestions for revision, or fully justified rejection, will be rapidly communicated to authors. Full instructions for contributors may be obtained from the Editor or the Publisher.

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# Keeper's Alert

## CITES Transport Guidelines Available

The Conference of the 74 Governments which are parties to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) meeting in New Delhi in March 1981 formerly endorsed a revised version of *Guidelines for the Transport of Live Wild Animals and Plants*. The *Guidelines* apply to all wild animals and plants, and cover all forms of transport (air, land, sea and inland waterways). They include 18 sets of illustrated Packer's Guidelines, covering: Terrestrial Mammals Except Elephants and Ungulates; Terrestrial Mammals: Elephants and Ungulates; Sloths, Bats, Flying Lemurs; Marine Mammals: Whales, Dolphins, Porpoises, Dungongs, Manatees; Marine Mammals: Seals; Mice, Rats, Cavies and Other Small Mammals; Water Birds and Large Birds of Non-Perching Habit; Parrots, Pigeons, Passerines, Near Passerines; Birds of Prey and Owls; Freshwater Terrapins and Turtles, Marine Turtles; Crocodiles, Alligators, Caimans and Gavials; Tortoises and Land Turtles, Snakes, Lizards; Amphibians, Aquatic forms; Amphibians, Terrestrial forms; Fishes, Except those species that cannot be contained in polythene bags; Fishes That would damage Polythene bags; Aquatic Invertebrates and Terrestrial Invertebrates.

Each set of Packer's Guidelines is illustrated with drawings showing the type of containers to be used for different animals and their proper labels based on the *Live Animal Regulations* of the International Air Transport Association (IATA). Instructions are given for animal welfare, feeding and treatment during transport, as well as for the packaging and treatment of plants.

*Guidelines for Transport*, published by UNIPUB in 1981, 109 pp., is available for \$13.00. It is also available in French and Spanish. Order from: UNIPUB, 345 Park Avenue South, New York, NY 10010.



## Wildlife Research.....

### RIO GRANDE ZOO PARTICIPATES IN MEXICAN WOLF RECOVERY PROGRAM

The Rio Grande Zoo in Albuquerque, NM, is participating in the International Wolf Recovery Program. A pair of extremely rare Mexican wolves (*Canis lupus baileyi*) have recently been placed in a new spacious enclosure at Rio Grande Zoo. This constitutes the third placement of the species in captivity. Other animals are held at the Arizona-Sonora Desert Museum in Tucson, AZ and at the Wild Canid Survival and Research Center near St. Louis, MO. It is thought that only about 30 Mexican wolves remain in the wild.

The U.S. Fish and Wildlife Service and Mexico's Direccion General de la Fauna Silvestre have embarked upon a joint program to capture as many of the species as possible and place them in captive environments. While the Mexican government retains ownership of the animals, some of them have been temporarily placed in the care of the U.S. Fish and Wildlife Service, who in turn deposits the animals in participating zoological parks and research facilities. A total of ten of these wolves are now in such environments.

---Rio Grande Zoo News Release



# Legislative News

*Compiled by Kevin Conway*

## HOUSE SUBCOMMITTEE HOLDS OVERSIGHT HEARINGS ON ENDANGERED SPECIES ACT

John Breaux, Chairman of the House Subcommittee on Fisheries, Wildlife Conservation and the Environment, held oversight hearings on the Endangered Species Act on 22 February and 8 March 1982. These were held to examine how well the Act has worked, to determine whether it is achieving Congress' intended goals and to decide whether it needs modification.

On the first day hearings on the Subcommittee dealt with concerns of the states and with international issues. On the second day of hearings, they concentrated on the Section 4 listing process and the Section 7 agency consultation and exemption issues.

Many of the groups who testified offered amendments which will be considered by the Subcommittee. Mr. Breaux indicated his commitment to reauthorization of the Act, but stated that the Subcommittee has not yet determined what amendments (if any) will be adopted, or for how long the Act should be reauthorized.

In addition, a panel of Administrative witnesses testified. The Administration supports a two-year reauthorization without any amendments to the Act.

At the conclusion of the oversight hearings, Mr. Breaux indicated that he probably would handle this legislation like he handled the reauthorization of the Marine Mammal Protection Act last year. Those groups interested in participating in the amendment process would form a working coalition. They would attempt to work out compromises among themselves by a stated deadline. If the Coalition did not meet the deadline or did not work out a compromise position, then the Subcommittee would make its own recommendation.

A bill will be introduced by the Subcommittee soon which will serve as the vehicle to start this process.

*---AAZPA Newsletter  
April 1982*

## HOUSE ENDANGERED SPECIES HEARINGS CONTINUE WITH TESTIMONY FROM ADMINISTRATION AND CONSERVATION GROUPS

Three federal agency representatives presented conflicting recommendations regarding reauthorization of the Endangered Species Act during a second oversight hearing held 8 March by a House Merchant Marine subcommittee. Explaining that "we cannot ask others to take firm action if we are not willing to do likewise," William Stevenson of the National Marine Fisheries Service (NMFS) and David Colson of the State Department emphasized the Act's importance to U.S. leadership in international conservation and recommended a two-year reauthorization with no amendments.

However, F. Eugene Hester, Deputy Director of the U.S. Fish and Wildlife Service (USFWS), proposed a one-year reauthorization during which the agency would attempt to correct several problems (identified during a DOI review

## LEGISLATIVE NEWS, continued

of the Act) through regulatory and administrative mechanisms. He singled out the Section 7 exemption process for change. Subcommittee chairman Rep. Breaux, pointing out that the USFWS has not yet issued regulations required under 1978 and 1979 Act amendments, questioned the agency's ability to make such substantial changes in one year. Hester admitted that, unlike NMFS and the State Department, his testimony has not been cleared by the Office of Management and Budget, and represented only Interior's position.

Responding to insistent questioning from Rep. Tauzin (LA) to specify when a species should be allowed to become extinct in favor of human activity, Jack Early of the National Agriculture Chemicals Association averred: "Every species is expendable somewhere down the line except mankind."

Michael Bean of the Environmental Defense Fund and William Blair of the Nature Conservancy stressed the need to base listing as endangered or threatened strictly on biological information, not economics. Bean maintained that the Act should first determine a species' biological status, then how much should be done to protect it. Only the second step should incorporate economic considerations. Current inclusion of economics in the first step, Bean asserted, will make species with low economic impact the most likely to be listed.

Audubon's Ken Berlin said that Section 7 of the Act--under which federal agencies must insure that their activities are not likely to jeopardize the continued existence of an endangered or threatened species or harm its habitat--is working "remarkably well." [If a species might be affected, agencies must consult with either USFWS or NMFS to determine whether the project in fact jeopardizes the species. A finding of conflict still does not mean the project is stopped. FWS and NMFS identify reasonable and prudent alternatives that would allow it to proceed without jeopardizing the species. When no reasonable alternatives exist and the project is economically sound, a 1978 amendment to Section 7 allows certain regionally and nationally significant projects immunity from the "no jeopardy" requirement.] Berlin noted that of 9,686 consultations over the past three years, only 185 actions potentially threatened an endangered or threatened species, and only two projects were stopped for reasons that might involve the Act.

Lindell Marsh of Nossaman, Kreiger, and Marsh emphasized the need for early federal involvement during project planning stages, because necessary modifications are cheaper and easier to incorporate before major resource allocation decisions are made.

Patrick Parenteau of the National Wildlife Federation praised Section 7 as the cornerstone of the Act, and warned against tampering with its basic framework. He proposed an amendment to the current exemption process to halve the processing time while maintaining its integrity. His testimony stressed the need for biologically-based listing, protection of all species (not just "higher" forms), and adequate funding, especially for state cooperative agreements.

---Conservation Report  
National Wildlife Federation

## ENDANGERED SPECIES REAUTHORIZATION BILL UNVEILED ON SENATE SIDE

On 30 March, Sen. Chaffee (R-RI) introduced a bill (S.2309) to amend and reauthorize funds for the Endangered Species Act. Joined by cosponsors Mitchell (D-ME) and Gorton (R-WA), the Senator indicated that S.2309 is

intended to provide a basis for constructive discussion of key issues during the reauthorization process.

To that end, witnesses will be afforded an opportunity to present specific suggestions during hearings on 19 and 22 April before Chaffee's Subcommittee on Environmental Pollution. The Committee on Environment and Public Works will complete mark-up on 15 May, with a final version through both houses and signed by the President before October 1. Changes contained in S.2309 address a number of important issues, such as:

1) Experimental Populations--S.2309 establishes a category of "experimental populations" for populations of endangered or threatened species introduced outside their current range. These experimental populations would be treated as threatened unless determined to be nonessential to the species continued existence. Outside National Wildlife Refuge boundaries, nonessential experimental populations would be treated as species proposed for listing and, thus, would be excluded from designation of critical habitat, the Section 7 jeopardy standard, and the prohibition against taking in Section 9 of the Act.

2) Listing and Delisting Process--In order to increase the number of species listed and insure that listings are based on sound scientific evidence, S.2309 would amend Section 4 to require the Secretary of the Interior to:

- a) regularly review the status of species that have been identified as endangered or threatened by professional scientific organizations, state resource agencies, and foreign nations, to determine whether substantial evidence exists that the species may be endangered or threatened;
- b) decide whether to propose a species for listing within one year from the time it is decided that there is substantial evidence; and
- c) decide whether to list a species within two years from the time it is proposed.

3) Section 7 Exemption Process--Projects that pose an irresolvable conflict with the continued existence of endangered and threatened species currently may be exempted from the no-jeopardy requirement of Section 7 if there is no reasonable alternatives, if the benefits of the project clearly outweigh the benefits of species conservation, and if the project is of regional or national significance. In response to industry criticism that the current exemption process is time-consuming and unworkable, S.2309 would substitute the Secretary of Interior or of Commerce for the three member review board that presently prepares a report for the Endangered Species Committee responsible for granting exemptions. In addition, the exemption process would be shortened from 360 to 200 days.

4) Bobcat Decision--S.2309 would assert that management of resident non-endangered species is a state responsibility by overturning the Court of Appeal's decision on export of bobcat pelts. The proposed amendment states that the Secretary of Interior shall not be required to use estimates of population size in deciding whether export will be detrimental to the survival of a species listed under the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) when such estimates are not the best available biological information.

Finally, S.2309 reauthorizes funding for the Endangered Species Act for three years. By request, Chaffee also introduced an Administration bill (S.2310) to reauthorize the Act for two years with no amendments.

# Chapter

*Patti Kuntzman*  
*Chapter Affairs Coordinator*

## Lafayette Park Chapter, Norfolk, VA

They had a "Spring Art at the Zoo" planned for April 16th and 17th. Hope it was a success! They are also planning to set up information booths on the zoo at community festivals. The Chapter has chosen the Malayan Sun Bear as their logo. Good choice, gang!

Officers of Lafayette Chapter are:

President....Louise LaRoche  
Vice President....David Hill  
Secretary....Tammy Nance  
Treasurer....Bonnie Larson

## Indianapolis Chapter

They are using money they have raised to further keeper education, and also to help supplement expenses for conferences and visits to other zoos. They are also using the money for guest speakers and these programs are open to the general public. Other projects are: selling marshmallows at the bon-fire during Halloween-Zoobilee, selling "Maw" and "Paw" prints (animal footprints suitable for framing), and they sponsor lunches once or twice a month! Good work, Indianapolis!

New officers elected at Indianapolis are:

President....Bill Christie  
V.P./Treas....Lynne Villers  
Secretary.....Laurie Christie

## Miami Metrozoo Chapter

Well, Miami is at it again. They took a moonlight bike ride through Shark Valley located in the Everglades. More than 20 people cycled for over three hours, but the variety of wild-life seen was well worth it.

They had Brian Mealy from the Museum of Science come and talk about raptor rehabilitation. He answered many questions for the keepers.

Miami is into raffling off two keepers. That's right! Raffling off keepers. They sold tickets for \$1.00. The prize

was the chance to spend a day with a keeper. They chose two because they wanted to have both male and female representatives. They advertised with posters, flyers, keepers word of mouth, and even sent out a press release. That's a terrific, unique idea!!

Busch Gardens invited Miami, along with other chapters in the area, to spend a whole day at their zoo. The keepers were loaded into a feed truck and shown behind the scenes.

Keep going Miami. You people are very inspiring and give the rest of us incentive to GET ACTIVE!!

# News

## Topeka Zoo Chapter

The Topeka Chapter has been busy preparing for their Tropical Habitats Workshop which was scheduled to be held May 6-8. Included in the format were papers on various aspects of maintaining tropical habitat exhibits, a tour of Topeka's Tropical Rain Forest exhibit and the Gage Park Greenhouse, group discussions and a plant swap. Featured speaker at the event was Dr. John Simmons of the Natural History Museum at the University of Kansas. He spoke on a region of the upper Amazon in which he had worked and on the wider topic of destruction of rain forests in the Amazon.



## "SPEND A DAY WITH A ZOOKEEPER" RAFFLE

By

Jean Hromadka  
Miami MetroZoo

The South Florida AAZK Chapter was desperately searching for ways to raise money for the chapter so that we could accomplish the goals we had set for this year. One of our docents suggested that we raffle off a whole day spent with a zookeeper behind the scenes. A proposal was then submitted to the administration which was approved with great enthusiasm. We then started a list of zookeepers who volunteered to participate with the raffle and chose the two by pulling their names from a hat. We felt it was important to have two winners so that a male and female keeper could act as zoo representatives, both being necessary for the facility to operate efficiently.

Our editor for the chapter newsletter typeset the tickets in advance so we were able to save \$22 when we took them in to a printer to have 1000 tickets run off. Although it cost under fifty dollars to have the tickets made, this expense could be eliminated with the aid of a sponsor.

The unique aspect about this project is that all you really need is a willing keeper to get it under way. For advertisement, we produced posters and flyers combined with keepers roaming the grounds in their spare time selling tickets by word of mouth. We also put out a press release and contacted radio stations about promotional announcements. By the eleventh day of the raffle, we had sold over half of the tickets. At one dollar apiece, the profit potential is outstanding.

The kick-off day for the raffle was held over the weekend of February 13 and 14 during the Art Festival here at Metrozoo. The raffle ran for one month and the drawing was held on 14 March in the amphitheater. The first winner drawn chose which keeper he or she wished to spend the day with. The Second winner was paired with the remaining keeper. To avoid confusion, we arranged the tours to be conducted on two different days following the actual drawing. The first tour was Saturday, 20 March and the second was scheduled on Saturday, 27 March. The winners reported to the zoo at 9 a.m. along with the rest of the staff and followed the schedule prepared for the whole day until 6 p.m. when the zoo day came to an end.

The keeper chosen as representatives were not required to be experts in all the areas of the zoo, so that when they did escort the visitor into an unfamiliar section, the keeper responsible for that particular routine answered questions and explained their duties. Our only requirement to participate in the raffle was that the participant be fifteen years old or older and that they sign a release form for insurance purposes.

The money earned by this raffle will go towards chapter debts, our "Keeper Career" slide presentation, future planned workshops and conferences and especially to the manatee here in South Florida which is quickly losing ground within its natural habitat.

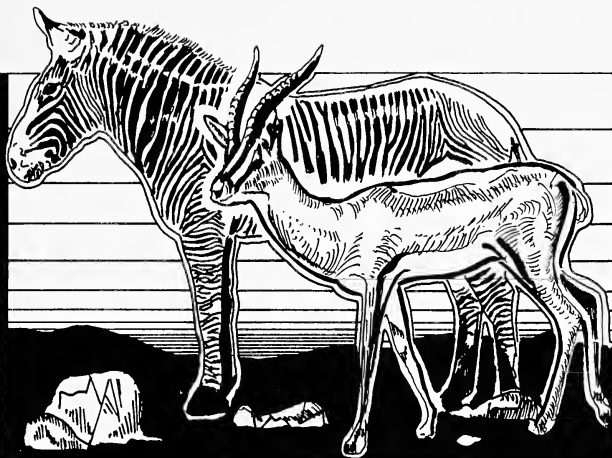






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We are indebted to the AAZPA Newsletter for allowing us to reprint portions of this section from their "Positions Available" listing. This is a monthly service to us, for you.

ANIMAL KEEPER II...positions available in Mammal and Bird Departments of Baltimore Zoo. Work closely under supervision of curator in training, directing and supervision of Animal Keeper I's. Maintains records and reports; handles educational programs; participates in animal handling and related responsibilities. High school diploma or GED, one year's experience as animal keeper in zoological park and driver's license required. Salary \$12,096-\$13,206. Send resume to Civil Service Commission of Baltimore, 111 N. Calvert St., Baltimore, MD 21217.

AQUARIST/KEEPER...responsible for maintenance of saltwater and freshwater displays. Bachelor's degree in biology and professional aquarium experience or equivalent combination required. Interested applicants should apply in writing to Ronald Goellner, Curator/Reptiles, St. Louis Zoological Park, Forest Park, St. Louis, MO 63110.

KEEPER...to work primarily in hoof stock area. Some work with elephants also. Starting salary \$4.00/hour. Contact Hayes Caldwell, Executive Director, Caldwell Zoo, P.O. Box 428, Tyler, TX 75710.

AQUARIST...involves collection and husbandry of aquatic specimens and maintenance of exhibits. Extensive previous experience in maintaining fresh and saltwater aquariums and SCUBA certification required. Credentials must be received by 28 May 1982; submit to Carol Ruppert, National Aquarium in Baltimore, Pier 3, 501 E. Pratt St., Baltimore, MD 21202 EOE.

MAMMALOGIST AND AVICULTURIST...the San Antonio Zoo and Aquarium has these two positions available. Mammalogist is responsible for mammal collection of over 700+ specimens. Aviculturist responsible for bird collection with over 1000+ specimens. Requirements for both include extensive knowledge and experience in captive management of exotic animals, considerable experience in personnel management, training and supervision. Degree in biology or closely related field. Proven ability to establish and maintain effective working relationships, ability to represent zoo in person and in print. Progressively responsible experience in zoo management. Salary \$17,000-\$27,000, plus benefits. Send resume to Russel L. Smith, General Curator, San Antonio Zoo, 3903 N. St. Mary's St., San Antonio, TX 78212.

ASSISTANT DIRECTOR...Bachelor's degree in one of the natural sciences required; advanced degree desirable. Ten years' responsible supervisory experience, with five years in top management position required, plus ten years' institutional experience in nature interpretation and environmental education. Extensive experience in, and responsibility for interpretive planning, budget process, exhibit planning, volunteer utilization, visitor programs, employee motivation. Professional knowledge of all interpretive media. Proven decision-making ability. Resumes must be received by 1 August 1982 and include the following information covering past five years: salary history, budgetary, managerial, interpretive and planning responsibilities. Send resume to: Personnel Director, Arizona-Sonora Desert Museum, Rt. 9, Box 900, Tucson, AZ 85743.

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### Directory Information

Zoo	Work Area	Special Interests
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Mail this application and check or money order, payable to American Association of Zoo Keepers, to: AAZK National Headquarters, Topeka Zoo, 635 Gage Blvd., Topeka, KS 66606.

Membership includes a subscription to the *Animal Keepers' Forum*. The membership card is good for free admission to many zoos and aquariums in the U.S. and Canada

### INFORMATION FOR CONTRIBUTORS



*Animal Keepers' Forum* publishes original papers and news items of interest to the Animal Keeping profession. Non-members are welcome to submit articles.

Articles should be typed or hand-printed. All illustrations, graphs and tables should be clearly marked, in final form, and should fit in a page size of no more than 6" x 10" (15 cm x 25½ cm.). Literature used should be cited in the text and in final bibliography. Avoid footnotes. Include scientific names.

Articles sent to *Animal Keepers' Forum* will be reviewed for publication. No commitment is made to the author, but an effort will be made to publish articles as soon as possible. Those longer than three pages may be separated into monthly installments at the discretion of the editorial staff. The editors reserve the right to edit material without consultation unless approval is requested in writing by the author. Materials submitted will not be returned unless accompanied by a stamped, self-addressed envelope.

Telephoned contributions on late-breaking news or last minute insertions are accepted. However, phone-in contributions of long articles will not be accepted. The phone number is (913) 272-5821.

DEADLINE FOR EACH EDITION IS THE 15TH OF THE PRECEDING MONTH

*Articles printed do not necessarily reflect the opinions of the Animal Keepers' Forum editorial staff or of the American Association of Zoo Keepers.*

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# Animal Keepers' Forum



*Dedicated to Professional Animal Care*

JUNE 1982

Executive Editor: Mike Coker  
 Managing Editor: Susan Chan  
 Associate Editor: Connie Cloak  
 Editorial Assistant: Diana Brey

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<u>Animal Data Transfer Forms</u>	<u>Book Reviews</u>
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*This month's Keeper/Artist is Elizabeth Pine, a pachyderm keeper at Lafayette Zoological Park in Norfolk, VA. Her cover drawing is of an Angel Fish or Scalare. Thanks, Elizabeth!*

# Scoops and Scuttlebutt

## NEW PROGRAM LIBRARIAN NAMED

Mike Crocker, Dickerson Park Zoo, Springfield, MO., has been named to succeed Ellen Leach, Woodland Park Zoo, Seattle, WA as AAZK Program Librarian. Ellen will continue in her position as Book Review Coordinator.

## AAZK EDUCATION COORDINATOR NAMED

Judie Steenberg of Woodland Park Zoo has accepted the post of AAZK Education Coordinator. In the capacity, she will be organizing information on current Keeper Education projects, assisting on the formation of new projects, and coordinating the development of programs and materials that will compliment the AAZPA Keeper Training Manual. Judie's long-time interest in Keeper Education and her enthusiasm for AAZK will make this a productive area of AAZK activity.

## CHAPTERS URGED TO TAKE ON T-SHIRT PROJECT

Carleton Bailie will no longer be in charge of the AAZK Logo T-shirts project. We owe many thanks to Carleton for his efforts in providing the popular item to members at conferences and through the mail. The shirts will be available temporarily through national headquarters. This would be an excellent way for a chapter to participate in a national project, producing funds for both the national and the chapter's treasury. If there is a chapter interested in assuming the responsibility for producing and distributing AAZK Logo T-shirts, please contact Chapter Affairs Coordinator, Patti Kuntzman, as soon as possible.

As a reminder, President Pat Sammarco would like to ask that any of you who have particular interest in a project that is on-going, or should be, to comment to her or to the various project heads with your ideas, criticisms and offers of assistance. AAZK is an association of zoo keepers and each keeper makes the association richer through participation.

## 1981 AAZK Conference Papers Available

The 1981 AAZK National Conference Proceedings containing seventeen papers presented at the meeting is available from National Headquarters for \$3.00 each plus 50 cents postage. Included are papers on Captive Elephant Management, Great Ape Keeping, Keeper Education, Raptor Rehabilitation and the Roles of Zookeepers in the 80's to name a few. Order from AAZK National Headquarters, 635 Gage Blvd., Topeka, KS 66606.

## AAZK RECEIVES THANKS FROM RESEARCHERS

University of California (Davis) researchers Susan Clarke and G. Mitchell wish to thank all those AAZK members who responded to their survey request on captive primate predation (AKF, Aug. 1981, p. 206). They were gratified by the response and are now beginning to summarize the results. When available, these results will be published in the Forum.

## from the President

The 1982 edition of the AAZK Membership Directory is printed and will be in the hands of all Professional members soon; available for purchase for others (\$3.00 members/\$6.00 non-members). The size of the Directory is now compatible with the AKF, and a few format changes have been made. Thanks to all of you for contributing information making your listings more meaningful as a means of Keepers communicating with Keepers who have similar interests. As editor, I will appreciate all comments and suggestions on further improving the Directory's usefulness.

As the 1982 National Conference in Toronto approaches, I would like to remind all members that the Board meetings immediately preceeding the conference on Sunday, are open to attendance and input by all members. If you have a topic to be discussed, please send me a letter with the proposal for discussion as soon as possible so that it will be included in the board member's notebooks and can be scheduled at a time that will be convenient for your attendance and/or read for you if you are unable to attend. Please make every effort to get your proposal to me before 15 September 1982. It is the enthusiasm and activity of AAZK members that makes the association work.

---Patricia E. Sammarco  
AAZK President



## Births & Hatchings

### TWO RARE GAZELLES BORN AT SAN DIEGO ZOO.....Conny Carson

The San Diego Zoo announced the first and second Western Hemisphere births of one of the most beautifully colored and most critically endangered antelope species in the world - the Mhorr gazelle. The two females were born on 3 Feb. and 9 Feb. 1982. The firstborn remains in a holding barn behind the Zoo exhibit and is being cared for by the mother. The 9 Feb. Mhorr gazelle baby was rejected by its mother and attempts to hand-raise the calf by attendants in the Children's Zoo Hoofstock Nursery came to an end on 21 March when this baby died.

Fewer than 100 Mhorr gazelles are held in captivity worldwide. These elegant ivory and chocolate colored animals are believed to be extinct in their Sahara Desert habitat. Native to the districts of Morocco and Senegal, both males and females have spiralled, backward-curving horns and long, slender ears. The gazelles stand about three feet high (one meter) at the shoulder and are marked by a distinctive white throat patch.

A male and three female Mhorr gazelles came to the Zoo in June 1981 from a private reserve near Almeria, Spain. Not much is known of the wild habits of this species which was first described in 1833. Its demise in the wild is the result of over-hunting and competition from cattle grazing on the desert's scant vegetation.

### ATLANTA ZOO LISTS JANUARY-APRIL B&H.....Connie Waterstradt

The following are the births and hatchings recorded at the Atlanta Zoo from January-April 1982: 0.1 Bison, 1.0 Grant's zebra, 3.3. Mallards, 0.0.1 Leopard gecko, 0.0.32 Eyelash viper (9\*) (first for AZP), 0.0.20 Monocellate cobra (first for AZP).



## BIRTHS AND HATCHINGS, continued

### INDIAN RHINO BORN AT LOS ANGELES ZOO.....Michael Dee

A female Indian rhino calf was born at Los Angeles Zoo on 16 February 1982 after a gestation period of 496 days. She weighed 90 pounds at birth and was 24 inches tall. She nursed for the first time at 7 hours and at 7 weeks of age weighs about 250 pounds and stands 30 inches at the shoulder. As of this date (eight weeks), the calf has not defecated. This appears to be normal procedure for Indian rhinos. The birth was a breech and from the time fetal membranes appeared to the first breath was one hour. Both mother and daughter are doing well. The calf is called "Meetha" (Hindu for Sweet) and should be joined sometime around the first of August 1982 by a half-brother or half-sister.

### RECENT BIRTHS AT THE FRESNO ZOO.....Mary L. Swanson

Spring has brought many births to the Fresno Zoo. February brought the birth of 1.1 African Crested porcupines, 0.1 Malayan Sun Bear. March saw the births of 1.0 Masai Giraffe and 2.2. Mouflon (including one set of twins). April's births included 1.3 Bengal tigers and 3.7 Eastern Timber Wolf.

One tiger was partially white and did not survive due to a nervous system disorder. 1.2 wolf cubs were weak and did not survive. 0.1 wolf and 0.1 tiger cubs are being hand-raised in the nursery.

### TOPEKA ZOO ANNOUNCES RECENT BIRTHS AND HATCHINGS.....Mike Coker

The Topeka Zoo staff is pleased to announce these new additions to our family: 0.0.2 Cotton-headed tamarin, 0.0.1 Blue-crowned pigeon, 0.0.2 Giant Indian Fruit bat, 0.0.3 Rothchild's mynah, 1.0 North American porcupine, 0.0.2 American Golden eagle, 0.0.1 Two-toed sloth, 0.0.1 Saddleback tamarin and 0.0.4 Budgeriar.

### CLEVELAND METROPARKS ZOO'S NEW ADDITIONS.....Charles Voracek

Recent births at the Cleveland Metroparks Zoo include: 0.0.7 Rhesus monkey, 0.0.1 Spider monkey, 0.0.1 Ring-tailed lemur, 0.0.1 Jaguar, 0.0.1 Eland and 0.0.3 Kodiak Bear. The baby lemur and spider monkey were the first of this species born at Cleveland.

### SANTA BARBARA ZOO ANNOUNCES RECENT LEMUR BIRTHS.....Jeff Berglund

The Santa Barbara Zoological Gardens is pleased to announce the successful births of two Black and White Ruffed Lemurs (*Lemur variegatus*) on 6 April 1982 and two Brown Lemurs (*Lemur fulvus*) on 24 April 1982.

Congratulations to the Santa Barbara Zoo for being granted accreditation in the American Association of Zoological Parks and Aquariums (AAZPA) on 22 February 1982.

### APRIL B & H FROM THE SAN ANTONIO ZOO.....Cindy Roger

The San Antonio Zoo is pleased to announce the following births and hatchings for the month of April. The Bird Department hatched 1 Sacred Ibis, 3 Giant Canada Goose, 2 Plumed Whistling Duck, 4 Moluccan Radjah Shelduck, 9 Orinoco Goose, 9 Mallard, 1 Palawan Peacock Pheasant, 2 Grey Peacock Pheasant, 2 Black-breasted Button Quail, 1 Demoiselle Crane, 2 Red and White Crane, 2 Double-striped Thick-knee, 2 Diamond Dove, 1 Yellow-backed Chattering Lory, 3 Sun Conure, 1 Pygmy Kingfisher, 3 Shama Thrush, 4 Green-winged Pytilia, 3 Red-cheeked Cordon Bleu, 2 Society Finch, 2 Red-bellied Buffalo Weaver, and 3 Black-winged Starling.

## BIRTHS AND HATCHINGS, continued

In Small Mammals, 2.1. Aardwolf, 1.2 Snow Leopard and 1 Grizzled Grey Tree Kangaroo were born. In Large Mammals, 1.0 Chapman's Zebra, 2.0 Javelina, 0.1 Common Eland, 0.1 Lady Grey's Waterbuck, 1.2 Scimitar-horned Oryx, 1.0 Gemsbok, 1.1 Topi, 1.0 Blackbuck, 1.1 Arabian Sand Gazelle, 0.1 Kirk's Dik Dik, 1.2 Aoudad, 2.1 Bezoar Goat and 0.1 Bighorn Sheep were born. The Aquarium produced 3 Glass Shrimp, 12 African Lyretailed Cichlid and an undetermined number of Koi.

For the first time in our Reptile Collection, the Banded Gila Monsters laid 2 eggs and the Yellow-sided Twist-neck Turtles laid 1 egg. In Birds, the breeding pair of Whooping Cranes also laid 1 egg. We are anxiously awaiting results!



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## Coming Events

### THIRD INTERNATIONAL SNOW LEOPARD SYMPOSIUM

June 23-23, 1982

Seattle, WA

For further information on the Symposium contact Helen Freeman, Woodland Park Zoo, 5500 Phinney Ave., N., Seattle, WA 98103. (206) 625-4550.

### SOFTBILL SYMPOSIUM

July 10, 1982

Houston, TX

Topics will include all aspects of softbill care and breeding, guest speakers will include Robert J. Berry (Houston Zoo) and Larry Shelton (Philadelphia Zoo). Morning coffee provided; afternoon lunch \$3.50. There will be a get together party Friday night. Sleeping bag accommodations will be made available with advance notice. Proceedings will be published (for a small fee). For further information please contact Rochelle Plasse or Trey Todd at the Houston Zoo, Bird Dept. (713) 520-3223. Those wishing to present papers please contact us by 1 July 1982. This date applies to those seeking accommodations also.

### THIRD ANNUAL WILDLIFE FILM FESTIVAL

July 9-11, 1982

Dearborn, MI

Festival will be held at the Hyatt Regency Hotel. For more information contact Liz Osboene, International Wildlife Foundation, 5151 East Broadway, Tucson, AZ 85711 (602) 745-0126.

### AAZPA ANNUAL CONFERENCE

September 19-23, 1982

Phoenix (Scottsdale), AZ

### THIRD ANNUAL ELEPHANT WORKSHOP

October 9-10

Springfield, MO

Hosted by Dickerson Park Zoo. For more information contact: Elephant Workshop Committee, Dickerson Park Zoo, 3043 North Fort, Springfield, MO 65803.

## ZOO HAPPENINGS FROM FRESNO

*By*  
*Mary L. Swanson, Keeper*

### Fresno's Elephant Comes Home

Fresno Zoo's young bull elephant "Thong-Trii" has finally come home. He was born at the Portland Zoo in 1979 and purchased by us early in 1981. He went from Portland to Marine World/Africa U.S.A. in Redwood City, CA for the training that is essential for the management of a bull elephant. Meantime we began construction on the new elephant exhibit for "Thong-Trii" and our 36-year-old cow elephant "Nosey".

At Marine World, "Thong-Trii" was trained by Paul Barkman. When an opening for keepers came up at Fresno Zoo, Paul took the test and was hired and so gets to stay with Thong's training. So in April 1982 when Paul joined our staff, he also brought Thong home to us.

The new elephant exhibit won't be completed until Fall 1982, so meantime Thong is housed temporarily in the hay barn next to "Nosey's" exhibit. "Nosey" has been alone since she came to us as a 3-year-old in 1949. At first she wasn't too sure of this new 2½-year-old elephant--she probably didn't know an elephant when she saw one. But within one day she was obviously excited. Her reaction is more sexual than maternal, giving us hopes for eventual breeding. We are gradually putting them together in the pen during the daytime for longer periods, expecting to be able to leave them together freely soon.

We are in the process of trying to acquire another young female Asian elephant. Thus "Nosey" will have the companionship a social animal needs, even when Thong can no longer be in the same yard with her when he comes of breeding age.

It's been a long struggle to raise the money to build the new elephant exhibit and to purchase new elephants. But at last it's all happening. All of Fresno is delighted with the addition of young "Thong-Trii".

### New Keepers at Fresno Zoo

The Fresno Zoo takes pleasure in announcing the addition of three new keepers to our permanent staff. They are Scott Barton, Michael Illig and Paul Barkman. Scott is a graduate of Fresno State University whose main interest is birds. He is assigned to the bird section. Michael is our first keeper trained at Moorpark College and is assigned to the bears, wolves and sea lions. Paul Barkman has many years of experience with elephants. His last employment was with Marine World/Africa U.S.A. He is assigned to the elephants and much of the hoofstock. We are very pleased to finally have someone with elephant experience and expertise at Fresno.

### Fresno's Gorilla Baby Leaves for San Diego

Delegates to the 1981 AAZK conference met our baby gorilla "Jitu". He was born to our adult "Fred" and San Diego's Alvila on 20 July 1980. "Avila" had no milk, so "Jitu" was hand-reared in our nursery with a 24-hour-a-day staff. Some months later his father died of heart failure, and we had to return his mother to San Diego, leaving little "Jitu" as our only gorilla.

## ZOO HAPPENINGS FROM FRESNO, continued

We made a long and determined effort to find a companion animal for "Jitu", hoping to find another baby gorilla or chimp or orangutan with no success. As he grew older, we felt it was imperative that he be with others of his kind. So we explored other alternatives.

The result was the opportunity to put him with a group of gorillas at the San Diego Wild Animal Park. His older sister, "Alberta", (our first-born gorilla) lives in that group as does his grandmother, "Vila". "Jitu" is on loan to the park.

He was taken to the Wild Animal Park by our Zoo Supervisor Bruce Rodriguez on 7 April 1982. We then went back to the normal staffing of the nursery with only one shift. "Jitu" is missed by the staff and the community. But it is more important for him to grow up in a gorilla group and learn gorilla behavior and perpetuate his species.



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## **Keeper's Alert**

### ATTENTION KEEPERS AND CHAPTERS!

A newly revised Animal Data Transfer Form has been developed. If your supply of ADT forms is low, remember to write for a shipment of the newly revised forms.

For contact and comments write to:

Bernie Feldman  
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1020 S. Morris Ave.  
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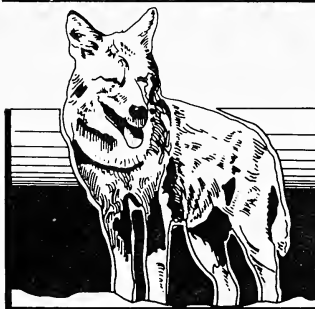
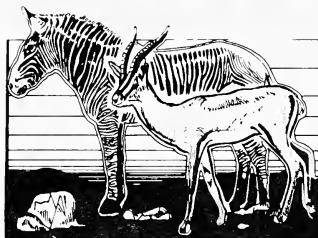
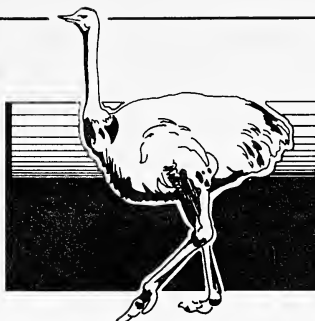
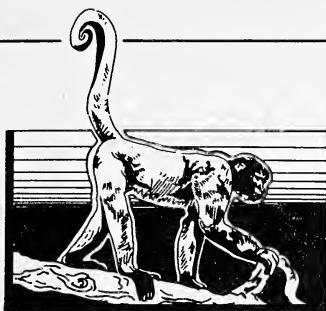
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### ZOO RESEARCH CONFERENCE TO BE HELD AUGUST 26-27

The Second Annual Conference on Zoo Research will be hosted by the Cincinnati Zoo and Kings Island Wild Animal Safari on 26 and 27 August 1982. The theme of the conference will be based on research involving reproduction and behavior and will include invited papers, panel discussions and workshops. A keynote speaker, special tours of the zoo and the wild animal park and other exciting events are planned. This conference promises to update participants on recent technology and current progress of zoo research. For further information contact Dr. Betsy Dresser, Director of Research, Cincinnati Zoo/Kings Island, 3400 Vine Street, Cincinnati, OH 45220.

---AAZPA Newsletter



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## ZOO RESEARCH NEWS

By Frank Kohn  
Audubon Park Zoo

The new journal, Zoo Biology, has been set for a first issue release in July 1982. Papers are now being considered for publication. The journal will publish review articles, research reports, short communications, technical notes, scholarly book reviews and invited editorials. The journal welcomes papers on behavior, demographics, education, husbandry, management, reproduction, conservation, as well as veterinary studies. Time lag in publication will be kept to a minimum of from four to eight months.

Instructions for contributors can be obtained by writing:

Terry L. Maple, Ph.D.  
Zoo Biology  
School of Psychology  
Georgia Institute of Technology  
Atlanta, GA 30332

Domestic subscriptions will cost \$70.00. Ordering and other information may be obtained by writing the publisher: Alan R. Liss, Inc., 150 Fifth Ave., New York, NY 10011.

The Animal Behavior Society will be holding its annual meeting in Duluth, MN from 15-20 August 1982 at the University of Minnesota, Duluth Campus. Persons interested in attending should write immediately to:

Dr. Mitzi Doane  
ABS Conference  
Dept. of Psychology  
University of Minnesota, Duluth  
Duluth, MN 55812

### CALL FOR SPEAKERS FOR RESEARCH WORKSHOP AT TORONTO CONFERENCE

A research workshop is being organized for the AAZK conference in Toronto. The goal of the workshop will be to introduce keepers to research techniques (primarily behavioral) and to discuss concepts with all keepers interested in organizing research projects at their zoos. We need your help. As keepers, you are already trained observers and many of you have conducted projects. A rough outline of the workshop is included below. The workshop is being planned for one afternoon at the Toronto conference.

If you would like to lead a section (around 20-30 minutes) or have a topic of interest, please let me know. Include your qualifications and past projects (or resume) and a brief outline of your proposed discussion. Topics should be geared for a general overview.

With your help, the workshop can make a large impact on keeper input into, and acceptance of zoo research. Send suggestions to:

Frank Kohn  
AAZK Research Committee  
Audubon Park & Zoological Garden  
New Orleans, LA 70118

Research Workshop Outline

- I. Introduction
  - A. History of Zoo Research
  - B. Behavioral Research
- II. General Theory and Methods
  - A. Planning
  - B. Sampling Techniques
  - C. Questionnaires
- III. Results and Analysis
  - A. The number game
  - B. Statistics and the padded cell
  - C. Tests, tests and more tests
  - D. The significance of it all
- IV. Topics
  - A. Insects
  - B. Herps
  - C. Birds
  - D. Mammals
    - 1. Hoofed stock
    - 2. Primates
    - 3. Carnivores
    - 4. Small Mammals
  - E. Vet Topics
- V. Integration of the parts
- VI. Organizing and Coordinating volunteers and students
- VII. Keeper Grants
- VIII. Summary and Discussion

These can include behavioral research,  
husbandry and management

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MTZ MAY HAVE WORLD'S LARGEST SNAPPING TURTLE

Although he may not be the Rip Van Winkle of the reptile world, the Metro Toronto Zoo's alligator snapping turtle is certainly a record setter. Staff at the zoo recently weighed the large turtle and found he tipped the scales at 102 kilograms (approximately 220 lbs), making him the largest alligator snapping turtle in captivity. Until its death recently, another turtle at Chicago's Brookfield Zoo was in contention for the title of being the largest on record. Toronto's specimen just may be the largest turtle in the world, although the alligator snapping turtle is just one of three species that grow to such large size. "Curious George" as he was named, came to Toronto in 1975 as a donation from the Dallas Aquarium. It is difficult to ascertain his age, but they have been known to live to 50 years of age and indeed much longer.

# *An Encouraging Word.....*

## TEN YEARS LATER: BIRD POPULATIONS RISE AS DDT DECLINES IN THE ENVIRONMENT

By

Joy Davis  
*Fish and Wildlife Service*

Ten years after the official ban on the use of DDT, the news from the wild is good: bald eagles, brown pelicans, and other bird species once decimated by the pesticide are repopulating former habitats as chemical residues fade.

The pesticide was banned in 1972 in the face of scientific evidence that it was causing serious environmental problems, including reproductive failure in susceptible bird species. For the past decade, human efforts have combined with natural forces to restore species that experienced sudden, sharp declines in the 1950's and 1960's. While specialists have teamed up to put intensive recovery programs into action, U.S. Fish and Wildlife Service researchers have completed studies that have proven DDE, a breakdown product of DDT, to be specifically responsible for eggshell thinning--the main reason some birds could no longer reproduce. Service scientists also learned which species were sensitive to the pesticide, as well as which ones suffered the heaviest exposures.

Scientists at the Service's Patuxent Wildlife Research Center near Washington, D.C. began to study the impact of DDT on wildlife shortly after World War II. In their investigations, Service scientists compared field observation with specialized laboratory research on surrogate species. They verified that sensitive species most seriously affected by DDT build-ups were those which preyed on fish and other small animals that had been exposed to DDT. Scientists learned that the higher a species and its food source were on the "food chain," the more severe the impact.

The bald eagle was highly vulnerable since it fed heavily on fish in which DDT residues had accumulated. By the late 1960's breeding populations had been practically lost in the Great Lakes region and on the East Coast, with just one known breeding pair each in New Jersey and New York State. Recently, however, bald eagles have returned to nest in formerly contaminated wetlands. Florida's population, which dropped 90 percent in the 1950's, has made a complete comeback, and the eagle's return to such regions as the Great Lakes may signal a turning point for America's national symbol.

The peregrine falcon--an efficient hunter which can strike its prey at 200 mph in mid-air--occupies a position in the food chain similar to that of the bald eagle and suffered a similar decline. By the late 1960's there were no peregrines known to nest east of the Mississippi River where several hundred pairs had existed formerly. Since there were no birds left to repopulate former habitats, the falcon's recovery has been aided in the last decade by re-introduction of captive-reared birds to promising areas, including cities where prey such as starlings and pigeons abound.

While bald eagles and peregrine falcons were contaminated by DDT through high concentrations in their diets, research has shown that they are less than half as sensitive to the pesticide as the endangered brown pelican. Most pelican populations on the Atlantic and Gulf coasts were hard hit in the 1960's. In South Carolina, for instance, there were about 6,000 breed-



## THE DDT STORY---TEN YEARS LATER, *continued*

ing pairs before DDT washed into Atlantic estuaries. In 1969--a low point for pelicans and other contaminated species--only 1,100 to 1,200 pairs were left and reproduction was nil. Now the pelicans number some 5,000 pairs, their rapid comeback mostly due to their principal food source, the menhaden fish, not having retained much DDT residue. Service scientists say that while pelican populations are not yet completely restored, their reproductive rate in most of the U.S. has returned to normal.

The osprey (fish hawk) also staged a rapid comeback after being nearly eradicated in parts of the East. From New York to Boston the osprey population fell from 1,000 to 100 breeding pairs in the 1960's. But the species has been on the rise since the mid-1970's, with normal reproduction. Biologists hope ospreys will reach their pre-DDT population level by the end of the century.

Scientists have not completely answered why species with similar habitats vary in their sensitivity to DDT. The black duck, for instance, is more sensitive to DDT than the mallard. Terns and skimmers that shared coastal habitats and fish diets with pelicans apparently were not affected by the pesticide. Herring gulls consume heavy amounts with little adverse reaction.

Although DDT has been banned in the U.S. for a decade and residues in most areas are slowly fading, some bird populations are still affected. In Los Angeles, for instance, high residues in sediments that are taking years to break down continue to contaminate pelicans. Also, some Western migratory bird populations, including peregrine falcons and black-crowned night herons, are absorbing DDT in Latin American countries where the pesticide is still used.

Editor's note: While the effects of DDT on bird populations in the U.S. have steadily declined since the official usage ban in 1972, this ugly pesticide specter has begun to raise its head once more in many developing nations.

Zimbabwe, for example, uses 1000 tons of DDT a year. And news comes that the fish eagle--a majestic two and a half foot long bird with a six-foot wing span--is feeling the effects. Last season around Lake Kariba over half the eggs of 40 clutches examined by game warden Ron Thomson turned out to be 40% thinner than normal. This means--as happened with the American bald eagle--that they will not hatch.

Mr. Thomson says that "the fish eagle could cease breeding around Lake Kariba in less than a decade." He also says that in Zimbabwe high levels of accumulated DDT have been found in human breast milk, dairy products, beef and corn. (Source: *The Animal Welfare Institute Quarterly*, Vol. 30, no. 3, Fall 1981)



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## ZOOS RECEIVE PROPAGATOR'S CERTIFICATES FROM AAZPA

Four American zoos have been issued Propagator's Certificates by the AAZPA. These certificates recognize achievement of sustained propagation by an institution and do not imply exclusive success or priority. Zoos honored with Gold Propagator's Awards were: Detroit Zoological Park for Axolotl and Gladys Porter Zoo for Malagasy Radiated Tortoise. Silver Propagator's certificates went to Woodland Park Zoological Gardens for the Lion-tailed Macaque and to the Topeka Zoological Park for the Pygmy Hedgehog Tenrec.

# Exhibit Options

## THE BRONX ZOO'S NEW DE JUR AVIARY: AN ENCORE

By

Richard J. Passaro  
Menagerie Keeper, Bronx Zoo

The finishing touches are now being completed on the recently renovated Flying Cage here at the Bronx Zoo. Having been closed for approximately five years, it is due to reopen again this spring. Sporting the new moniker "The De Jur Aviary", after the Harry De Jur Foundation who funded the project along with the City of New York, the exhibit has been designed to function as an active seabird breeding colony.

Originally erected in 1899, this huge aviary measures approximately 48 meters long, 17 meters wide and 15 meters high. Its arch-shaped structure is formed by metal wire draped over and secured to bowed tubular metal. This metal wire has been completely replaced and painted with non-lead based paint.

Prior to the renovation, the interior of the exhibit was heavily planted depicting a forested effect. Now, the entire exhibit has been altered to create the illusion of an actual rocky seabird colony. This was accomplished by removing the old pool and remodeling with gunite for a natural, rocky effect. In this way an island was formed in the large pool, with jagged mounds containing hollows in which the birds can nest. In addition, a simulated coastal bluff has been created at the south end of the exhibit. The bluff too has nesting burrows which have been especially designed for Inca terns. The hollows and burrows were then filled with small pebbles to create a more naturalistic setting. Finally, the rocks were stained and painted to simulate the guano-covered cliffs which occur at any bird nesting site.

It is through this strikingly realistic environment that the zoo visitor will be able to walk on specially constructed walkways. Although these walkways will have wire walls in which to guide people, there will be no overhead separation of man and bird. Also a system of double doors has been constructed at each entrance and exit to minimize escape.

Not visible to the eye but nevertheless important, were the renovations done on the delapidated drainage systems. Also a large holding room was constructed beneath the south end of the exhibit. It will function as winter quarters for primarily the Inca terns.

When the warm spring weather finally arrives, the De Jur Aviary will become a home for sea and water birds of many types. Some of the birds scheduled to be housed in the new exhibit include: Humboldt's Penguins, Guanay Cormorants, Inca Terns, Silver Gulls, Andean Gulls and Oystercatchers. We feel confident that this exhibit will not only be easy to maintain and aesthetically pleasing to the zoogoer, but also reproductively successful.



# THE STRUGGLE FOR SURVIVAL

## TWO DOZEN BLACK-FOOTED FERRETS FOUND

Jon Jensen, Executive Director of the Wildlife Preservation Trust International reports that a total of two dozen of the highly endangered black-footed ferrets have been located on the plains of western Wyoming. They are considered to be North America's rarest mammal. Once thought to be extinct, the black-footed ferret had not been seen for three years. It is listed as endangered under the Endangered Species Act.

On 26 September 1981, a ferret was accidentally killed on a ranch near Meeteetse, Wyoming. A live animal was discovered later in this area. Subsequent search efforts led by Dr. Tim Clark of Jackson Hole, Wyoming have determined that this ferret population now numbers 24 animals.

Jensen noted "What is most encouraging about this news is that our ongoing monitoring of the ferret site (since last November) indicated that the behavior of these ferrets is changing. Their hunting patterns and other movements indicate that they may be mating soon--we are hoping for offspring this summer." The black-footed ferret, a nocturnal hunter, lives on prairie dog colonies, preying on prairie dogs and other small rodents. It breeds in the spring, and raises its young until fall when the juveniles migrate to their own hunting ranges.

The U.S. Fish and Wildlife Service, charged with the protection of the black-footed ferret, has allocated no funds for ferret conservation in its 1982 budget. Because of this, their efforts at conserving the ferret consisted of two weeks monitoring of a live animal last September. The Wildlife Preservation Trust International continued ferret conservation work with a grant to Dr. Clark, who has been searching for ferrets for nearly ten years. Dr. Clark and his associates' efforts have focused on searching this vast region for more animals, while collecting vital information on the movements, ecology and behavior of the known population. This information will be vital to future work to save the black-footed ferret from extinction.

Experts think that the black-footed ferret was once as widely distributed as the prairie dog colonies that covered the western U.S. Poisoning of these colonies wiped out ferrets as well as prairie dogs. Pressures on the black-footed ferret will be severe in future months, as oil and gas development interests continue to explore this region of Wyoming for new energy sources. The current debate over renewal of the Endangered Species Act may determine whether the Office of Endangered Species will have the funds and manpower, as well as legal power, to protect the rarest mammal in North America.

--Wildlife Preservation Trust International

# Primate Profiles

## BIRTH OF A PATAS MONKEY

By  
Mary Beth Lasher  
Primate Keeper, Dallas Zoo

Over the years the Dallas Zoo has been quite successful in breeding our lone pair of Patas Monkeys (*Cercopithecus Patas*). We obtained this pair some time ago as young adults. The female "Mary Bell" arrived in October 1969, but the male "Henry" was not introduced to her until a year later. They have been together in the same enclosure since their arrival at the zoo.

Since "Mary Bell's" first pregnancy and birth in 1975, she has never been able to keep her offspring. This was due in part to Henry's aggressive and overbearing behavior after his maturation to an adult. There have been several recorded incidents of the female being severely bitten and requiring veterinary attention and surgery. "Mary Bell's" firstborn was taken away from her before she could inflict any serious injury. It was successfully raised in our nursery. However, her next three births resulted in tragedy, as the babies were apparently not discovered in time to prevent the male or female from severely battering them to death. Therefore, with this very recent pregnancy, the primate staff felt that several precautions needed to be taken.

We suspected "Mary Bell" to be pregnant in December 1981 and predicted a birth to occur anywhere between the months of February and April. At this time the enclosure adjoining the Patas' was empty and it was decided to separate the male and female at night since that was when they would get the least observation. We weren't sure if the male had any direct influence on the previous deaths, so by separating them we reduced this risk. "Mary Bell" seemed to take very well to being away from the male and she began eating regularly without the intimidation from "Henry".

On the morning of Friday, 12 February, a small amount of bloody mucous was found on the floor of the Patas enclosure though nothing else was unusual. The monkeys were put together during the day and separated at feeding time (2:30 p.m.) as usual. At this time more blood and mucous were found on the floor. I then noticed that the female's vulva was fairly swollen and wet with much mucous. She seemed to be very uncomfortable and restless within a matter of minutes and she began experiencing contractions shortly after. However, knowing that birth can occur anywhere from several minutes to several hours after contractions begin, most of the other keepers had left the zoo for the day. Being the only employee in the area at this time, I was anxious for "Mary Bell" to receive proper attention. The vet tech and the night keepers were notified, but the birth occurred before anyone arrived. I happened to be the only witness.

At approximately 4:00 p.m. "Mary Bell" was experiencing severe contractions and was becoming increasingly restless, moving about her enclosure almost constantly and pushing against anything solid. Her vulva by now was noticeably dilated. At about 4:10 p.m. the amniotic sac became visible several times and was finally broken. The feet and tail then emerged from the birth canal. A breech birth was obvious, but she didn't seem to be having much difficulty. The entire body of the fetus appeared about

## BIRTH OF A PATAS MONKEY, continued

three minutes later, but the shoulders and head seemed to be stuck in the canal. "Mary Bell" became very upset at this point and began to drag the fetus around on the floor, attempting to pull it from the birth canal. This behavior went on for approximately two more minutes until she experienced one final contraction and pushed the fetus out.

At first the newborn seemed quite lifeless, but very soon opened its eyes and began to flail about. However "Mary Bell" took no interest in the baby, but was frantically attempting to sever the umbilical cord with her teeth. She began dragging the baby around on the floor viscerously, all the while attached to the cord. She finally succeeded in severing it, but by that time the newborn had received several bruises and contusions about the face and head. It was also crying constantly but the female did nothing to mother it.

The vet tech and several keepers arrived shortly after the birth. Since I believed the female was battering the baby too much, it was decided to pull it from its mother. The female was darted with 100 mg Ketamine IM without too much trouble. The baby Patas, at first thought to be a female, later discovered to be a male, was placed in an incubator in our nursery. "Lenny" seemed to be quite healthy and normal for the first two weeks of his life. There seemed to be no adverse affects to his being battered by the mother as with previous births. However, "Lenny" developed an abdominal abscess, possibly due to infection, and he died on 23 February 1982.

It is quite unfortunate for us that "Mary Bell" does not possess the ability to raise her own infants since the Patas are one of the better breeding pairs of monkeys in the zoo. Even though we have no previous records of "Mary Bell" as a very young primate, we think that she was possibly hand-raised herself and therefore was never taught how to raise a baby. Excellent nursery care is essential when hand-raising a baby primate, but it can never fully replace mother-raising. The Dallas Zoo has had much success in raising its baby primates, but in my opinion nothing can take the place of the charm and beauty of a primate mother with its infant.



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MONGOLIA now includes the snow leopard among permissible game. The government is eager to attract rich foreigners who are not fussy about tourist facilities. Snow leopards live in the High Altai in eastern Mongolia. Any of three firms, two in the U.S. and one in West Germany, will take you there--in the company of hunters and for \$50,000.

LEBANON was responsible for a depressing non-event last year. In countless eastern European villages the eagerly awaited storks, harbingers of spring, never arrived. On their long migrating journey from southern Africa they had got no further than Lebanon. There thousands were massacred--apparently for their beaks. But what is the value of stork beaks?

CHINA's official New China News Agency quotes scientists as saying that half of the country's 130 endangered species are on the verge of extinction because of reckless killing and exports. The scientists ask for stricter laws and an educational program aimed at the hundreds of thousands of Chinese "commercial" hunters. Last year a peasant convicted of shooting a giant panda was jailed for 18 months.

--Animal Welfare Institute Quarterly  
Vol. 30, No. 3, Fall 1981

U.S. MAN AND THE BIOSPHERE SYMPOSIUM  
TO BE HELD IN WASHINGTON, D.C.

The U.S. Man and the Biosphere Program (a committee of the United States Commission for UNESCO) will hold an international symposium and workshop on the application of genetics to the management of wild plant and animal populations August 9-13, 1982 in Washington, D.C. The Symposium is billed as a "Technology Transfer of Genetics " to individuals responsible for managing biological resources in international, federal, state and private sectors.

Managers of biological resources have traditionally attempted to enhance the survival of wild plants and animals without regard to genetic characteristics of the individuals and populations, yet the importance of genetic data in promoting the health and adaptability of populations is well recognized in crop and livestock production. Lack of attention to genetic factors can limit the success or lead to the failure of management programs. As the surviving populations of many wild species become smaller, the importance of genetic factors will increase. The time required and the difficulty of defining genetic characteristics of wild populations also have limited the application of genetics to their management. Recent scientific discoveries, however, have made it much easier to genetically characterize populations so that managers now can consider genetic factors along with other data in making their decisions.

The purpose of this symposium and workshop is to transfer new knowledge and technology to the field of biological resources management with the intent of improving the long-term success and fiscal efficiency of biological resources management programs. Its intent is to short-cut the decades normally required for such information to filter from academic circles to the remote field locations where biological resources management actually takes place.

This symposium and workshop will provide perspectives on the potential contribution of genetics to the management of biological resources. It will specifically address problems associated with the management of wild animal and plant populations, primarily in the temperate zone, as protected areas become progressively more isolated. The isolation of these protected areas, due to changes in peripheral land use and human activities that interfere with historical patterns of movement and migration between populations, will also be addressed. Other topics to be discussed will include species declines, extinctions, and the founding of new populations, the merging of separated populations, and the maintenance of the natural diversity of populations and taxonomic units.

The Symposium and Workshops will identify gaps in our knowledge, and will develop recommendations for interim management practices that could be implemented immediately, as well as for future study to mitigate adverse conditions and trends known to be occurring or anticipated in protected areas.

Finally, the Symposium will explore possibilities for multidisciplinary, multiinstitutional and multinational approaches to solving the problem of biological resources management in a world vastly different from the one in which many of the protected species evolved. The subject matter of the symposium is certain to be of paramount concern in the decades ahead.

## Man and the Biosphere Symposium, (continued)

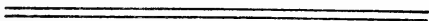
The Symposium and Workshops, to be held at the Hyatt Regency Hotel, will last five days and will consist of an intense schedule of morning talks and afternoon workshops lasting from 8:00 a.m. to 6:00 p.m. Each day will be devoted to one topic. The workshops will discuss and summarize the limitations and advantages of diagnostic methods for recognizing problems and subjects for additional research, including the testing of the hypothesis in the field.

The list of guest speakers and those individuals chairing workshops is an awesome collection of professionals in the field of biological resource management from both the federal and state levels as well as from various universities and zoological institutions across the country.

Chairman for the event is Dr. Christine Schonewald-Cox of the Natural Sciences Division, National Park Service, Dept. of the Interior. Co-chairman is Steven M. Chambers, Office of Endangered Species, U.S. Fish and Wildlife Service, Dept. of the Interior. Consultants are Bruce MacBryde and Larry Thomas, both of the Office of Endangered Species.

Due to recent federal cutbacks, the Symposium is relying heavily on donations to help offset expenses of the Symposium. Donating sponsors to date are: National Park Service, U.S. Fish and Wildlife Service, The National Geographic Society, The Peregrine Fund, The International Council for Bird Preservation, American Association for the Advancement of Science, Society of American Foresters, Alaska Dept. of Fish and Game and the New Jersey Dept. of Environmental Protection. Endorsing sponsors include: Sierra Club, The George Wright Society, The Wildlife Society, The Wildlife Management Institute, U.S. Dept. of Health and Human Services, the Smithsonian Institution, National Wildlife Federation, Trout Unlimited, AAZPA, Colorado Dept. of Natural Resources and Natural Areas Association.

AAZK Legislative Coordinator Kevin Conway has suggested that individuals or institutions wishing to make a contribution should stipulate that credit be given the individual or organization by the Symposium organizers. Kevin will be attending as a representative of AAZK.



## STUDBOOK ESTABLISHED FOR PYGMY MARMOSET

The Skansen Akvariet (Skansen Aquarium) of Stockholm, Sweden has initiated an international studbook for Pygmy marmosets (*Cebuella pygmae*). This studbook has been approved by IUDZG and IUCN, and all owners are requested to cooperate with the studbook keeper, Dr. Hans-Ove Larsson. Although ISIS has furnished Dr. Larsson with data relating to the species, all owners possessing this species are requested to send the following data to the studbook keeper: sex, house name, date and place of birth (zoo or country of origin), date of arrival, supplier, parents and any other information which may be suitable. All responses should be sent to Dr. Hans-Ove Larsson, Skansen Akvariet, S-115, 21 Stockholm, Sweden.

---AAZPA Newsletter

# Wildlife Research.....

## CALIFORNIA CONDOR PAIR LAYS SECOND EGG: WILL HISTORY REPEAT ITSELF?

By  
Inez Connor  
*Fish and Wildlife Service*

The pair of California condors that accidentally lost their egg in a domestic squabble in late February (see April 1982 AKF, p. 89), have laid a second egg, giving condor biologists cause for rejoicing.

Biologists of the Condor Research Center got their first look at the egg shortly before noon on 8 April, when the female rolled it out of a dark corner of the nesthole into full view of an observation station a half mile away. The egg was produced some time during the previous day, judging from the behavior of the female, and was laid in a cave about 100 yards distant from the cave the pair used for their first egg. Both sites are located in a remote mountainous region of northeast Ventura.

The condor pair's first egg, laid on 14 February, was lost over the edge of the cliff 12 days later as the birds fought over which one would sit on it. The condors, believed to be the same pair that successfully fledged a chick in 1980, also squabbled at that time over which would feed the young but the dispute did no apparent harm.

The condor biologists are not only concerned about discord between the condor pair but are also worried about a pair of opportunistic ravens that have already intruded into the condors' nest cave. Ravens are known predators of the eggs of other birds. Progress in the 60-day incubation of the California condor egg laid on 7 April will be closely watched by the research team.

The time between the loss of the first egg and laying of the second was about 40 days, according to Dr. Noel Snyder of the U.S. Fish and Wildlife Service and John Ogden of the National Audubon Society, co-leaders of the Condor Research Center. "This is the best evidence yet obtained that the critically endangered California condor will re-nest after nesting failure early in the breeding season, Dr. Snyder said.

Re-laying after early egg loss has long been known for captive Andean condors, but whether the California species might act similarly has been a matter of conjecture. The question appears now to be answered.

The ability of the Andean condors to re-lay after failure has enabled zoos and research institutions such as the Patuxent Wildlife Research Center to greatly increase the breeding rate of this close relative of the California condor. Andean condors, like California condors, normally lay only a single egg every other year. If an egg is removed from the nest to be hatched in an incubator, the pair can usually be expected to lay a second egg about a month later, a process called "double clutching." If the second egg is likewise removed, the parents sometimes will even lay a third egg. In this way, captive reproduction can be multiplied greatly over what pairs produce in the wild.

Biologists hope to be able to double and triple clutch captive California condors. Captive breeding of California condors recently received Federal and State approval as an important part of the efforts to save the



## WILDLIFE RESEARCH, continued

species from extinction. Only about 30 California condors remain in the wild, all in southern California. There is only one individual in captivity, a male bird at the Los Angeles Zoo named Topatopa.

Snyder and Ogden emphasize the importance of the recent proof of natural double clutching to the captive breeding program. If wild pairs will re-nest after early failure, it should be possible to establish a captive population by taking wild eggs for artificial incubation without having much effect on natural wild production and without reducing the size of the wild population.

Only four other active pairs of condors have been located by the research team. One of these produced a fledgling last year and is not expected to breed this year as they are still caring for this youngster. None of the other three pairs have laid as yet, with one month to go in the egg laying season. The research team is keeping close track of all these pairs from a safe distance.

Intensive observation of breeding pairs is just one aspect of the condor research program. Recently, permission was granted by the State of California and the FWS for the team to capture limited numbers of juvenile and non-breeding adult condors for captive breeding and radio telemetry. No birds have been caught in the first two months of trapping efforts, although several have visited the bait sites. The captive breeding program will be conducted at the San Diego Wild Animal Park and the Los Angeles Zoo. Birds trapped for radio telemetry will be outfitted with small solar transmitters on their wings and then released.



## Information Please

### INFORMATION REQUEST

Please send information concerning the problem of boredom with captive primates. I need ideas that have been tried or are being used in your zoo concerning mental and physical activities, games, apparatus, etc. Please give pros and cons on information that you send. I am interested mainly in gorillas, but all material concerning primates will be greatly appreciated. Send information to: Norm Rosenthal, Animal Keeper, Erie Zoological Society, P.O. Box 3268, Erie, PA 16508.

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INFORMATION/ASSISTANCE REQUEST--I am seeking assistance from individuals and/or institutions in locating possible sources of crocodilian eggs/hatchlings for continued studies of thermal behavior. I am interested primarily in the loan, rather than acquisition, of eggs and/or young. I am particularly interested in doing comparative studies of *Caiman* and *Paleosuchus*, but would also like to consider other species which may be available, including *Crocodylus*. I will be happy to organize permits, transport etc. and to cover all expenses involving the loan. If you can be of assistance in this project please contact: Jeffrey W. Lang, Assistant Professor, Department of Biology, Box 8238, University Station, Grand Forks, ND 58202 (701) 777-2621.

# Legislative News

*Compiled By Kevin Conway*

## COMMENTS COLLECTED ON CHAFEE'S ENDANGERED SPECIES PROPOSAL

Witnesses from the three federal agencies involved once again failed to get their act together, presenting conflicting views on S2309, a bill to amend and reauthorize funding for the Endangered Species Act. Stressing that Congress cannot afford the time or expense needed to review the Act every year, Environmental Pollution Subcommittee Chairman Chaffee (R-RI) rejected the one year reauthorization proposed by Assistant Interior Secretary G. Ray Arnett. The Departments of Commerce and State supported a two year reauthorization. Many of the 19 witnesses appearing on 19 and 22 April generally supported S2309, while suggesting changes in several key sections.

S2309 establishes an "experimental population" category to encourage re-introduction of endangered or threatened species outside their current range. To alleviate industry and state concerns, such populations would be considered "threatened" unless determined to be nonessential to total species survival. If nonessential, the population would be excluded from critical habitat designation, the Section 7 jeopardy standard, and the Section 9 prohibition against taking.

To increase the number of species listed, S2309 sets strict time limits on the various steps in the listing process and requires the Interior Secretary to justify listing decisions. The bill calls for designating critical habitat at the time of the listing "to the maximum extent prudent and determinable." Witnesses from the National Wildlife Federation, Environmental Defense Fund, and Nature Conservancy called for eliminating economic considerations from critical habitat determinations.

The current Act requires federal agencies to consult with the Secretary of Interior (or Commerce for marine species) on any action which is likely to jeopardize the continued existence of an endangered or threatened species. The Secretary has 90 days to issue a biological opinion, unless the agency and Secretary agree to an extension; S2309 includes the applicant in any extension decision. NWF's Patrick Parenteau addressed the problem of completing a biological opinion in 90 days when necessary scientific information is missing. Currently, the agency must issue a "no-jeopardy" opinion if data are unavailable, allowing the project to proceed with no changes. Parenteau proposed that those project aspects that do not represent an "irreversible or irretrievable commitment of resources" be allowed to proceed while data on species harm are being gathered.

Projects that pose an irresolvable conflict with the continued existence of an endangered or threatened species may ask to be exempted from Section 7 no-jeopardy requirements. Industry has criticized the current process as time consuming and unworkable. S2309 shortens the process from 360 to 200 days and substitutes the Secretary of Interior or Commerce for the Review Board which prepares the fact-finding report. Parenteau recommended that a politically neutral administrative law judge carry out the fact-finding procedure, to reduce political pressure on the exemption process.

Jerry Haggard of the American Mining Congress and Roland Fisher of the Colorado River Water Conservation District proposed that the federal action agency, rather than the Endangered Species Committee, have the final say on projects posing an irresolvable conflict with the continued survival of a listed species. Haggard argued that Section 7 provisions should apply only if an action is likely "to significantly jeopardize a species." When Chaffee asked him to define "significant jeopardy," Haggard replied that significant jeopardy means "something more than mere" jeopardy. Chaffee challenged Fisher's contention that the Endangered Species Committee "is highly stacked in favor of species preservation at any cost" by proceeding to tick off its members: Secretary of Agriculture, Secretary of Army, Chairman of the Council of Economic Advisors, a state appointee, Secretary of the Interior. "There are your five votes," he commented.

S2309 would confirm state responsibility for management of resident non-endangered species by overturning a court decision on bobcat pelts export. S2309 says that, in determining whether export will be detrimental to the survival of a species listed under the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), the DOI Secretary is not required to use estimates of population size when such estimates are not the best biological information. Instead, the Secretary is required to use the best available biological information "derived from reliable wildlife management practices."

At previous hearings, industry complained that a permit applicant who receives a no-jeopardy ruling under Section 7 must be liable under Section 9 for the incidental take of any individuals of a listed species. S2309 exempts from Section 9 projects receiving no-jeopardy opinions or implementing proposed alternatives.

---Conservation Report  
National Wildlife Federation

PROPOSED RULE IMPLEMENTING THE FISH AND WILDLIFE CONSERVATION ACT OF 1980

This proposed rule would implement the Fish and Wildlife Conservation Act of 1980 which provides for Federal funds to States for developing, revising and implementing in consultation with appropriate Federal, State and local and regional agencies, plans for the conservation of fish and wildlife. It seeks to clarify requirements set forth in the Act and to merge with them other requirements on grantees and grant-administering agencies by other laws, Executive orders and policies such as Office of Management and Budget.

The Fish and Wildlife Conservation Act of 1980 was passed in September 1980 to become operational October 1, 1981. It provides for a system of grants to the 50 States, Guam, Puerto Rico, the Virgin Islands, American Samoa, the Northern Mariana Islands, the Trust Territories of the Pacific Islands and the District of Columbia to encourage the preparation of and implementation of plans for the conservation of fish and wildlife, with emphasis on nongame species. It is intended that this grant program will function in concert with the existing Federal Aid in Fish Restoration and Federal Aid in Wildlife Restoration programs which place emphasis on sport fish and hunted wildlife respectively. This proposed rule is written to be compatible with the rule pertaining to these Acts [50 CFR Part 80]. The grant program will be referenced in the *Catalog of Federal Domestic Assistance* as Program number 15.614, Fish and Wildlife Planning and Nongame Assistance.

---Federal Register  
6 April 1982  
Vol. 47, No. 66

USFWS REVIEWS STATUS OF WOOD STORK, SPOTTED BAT

The Fish and Wildlife Service has requested comments on the status of the U.S. breeding populations of the wood stork (*Mycteria americana*) and the spotted bat (*Euderma maculatum*). The FWS is particularly interested in receiving comments and data about the following:

1) biological, commercial, or other relevant data (or the lack thereof) on these species; 2) location of habitats of these species and reasons why any habitat should or should not be determined critical habitat as provided by the Endangered Species Act; 3) current or planned activities that might be detrimental or beneficial to these species; 4) probable impacts on such activities if the area is designated as Critical Habitat; 5) additional information concerning the range and distribution of the species.

The information received by FWS on these species will be analyzed and used in making its decisions. Then the FWS will take the appropriate action concerning each species.

Wood Stork

On 16 February, FWS published a notice in the *Federal Register* concerning the U.S. breeding population of the wood stork. FWS is trying to determine if this population of the species should be proposed as an endangered or threatened species. The U.S. breeding population of wood storks appears to be decreasing and adverse modification of their habitat is occurring. Two major factors in their decline are a reduced number of available nesting sites and a loss of adequate food during the nesting season.

Comments and data should be sent to Mr. Donald Hankla, Area Manager, U.S. Fish and Wildlife Service, Department of Interior, 15 North Laura St., Jacksonville, FL 32202 (904) 791-2267.

Spotted Bat

On 8 March, the FWS published a notice in the *Federal Register* concerning the status of the spotted bat, to determine if it should be added to the list of U.S. endangered and threatened wildlife under the Endangered Species Act.

The distribution of the spotted bat is restricted to western North America, which contains vast tracts of land that have not been adequately surveyed. Therefore the occurrence and status of the species over much of the range is virtually unknown.

The spotted bat is a rare species. It does not migrate great distances, making it particularly sensitive to disturbance by humans. Its rarity and striking appearance also make it a fine specimen for museum collections.

Comments and data should be sent to John L. Paradiso, Office of Endangered Species, U.S. Fish and Wildlife Service, Dept. of the Interior, Washington DC 20240 (703) 235-1975.



# Chapter

## Topeka AAZK Chapter

Tours of the unique Tropical Rain Forest Building by sunlight and again by moonlight...a relaxing Potluck Supper...a tour of the Forbes Conservation/Propagation Area and the Gage Park Greenhouse facilities...these are just a few of the memorable events included in the Tropical Habitat Exhibits Workshop May 7-8 sponsored by the Topeka AAZK Chapter at the World Famous Topeka Zoo. People from 19 zoos in the U.S. and British Columbia participated in the workshop. Presentations were given on various aspects of Tropical Habitat Exhibits, their inhabitants, care and management. Each presentation succeeded in stimulating lively discussion.

The Friday session was highlighted by guest speaker John Simmons, Division of Herpetology of the Natural History Museum, University of Kansas in Lawrence, KS. Simmons reflected on his research of the rain forest herps/fauna of South America, the rain forest destruction he witnessed and its consequences now and in the future. The proceedings of the workshop will be published in a special upcoming issue of AKF, hopefully in August.

We would like to thank all those who participated on the workshop. It was a great success and a lot of fun. Some people left the workshop with an interest in sponsoring Tropical Habitat Exhibit Workshops next year.

## Philadelphia Zoo Chapter

They are working on a brochure, along with their education department for Endangered Species Week. They also will be conducting brief 10-15 min. lectures for the public during that week. They have been selling 50-50 chances to help raise funds for the AAZK conference in 1983. The Conference Committee has already gotten accommodations and a tentative schedule for the Conference. Good Work, Philly!

*Patti Kuntzmann  
Coordinator for Chapter Affairs*

## Metro Toronto Zoo Chapter

In January the chapter held their first meeting for 1982. They had an interesting and informative talk and slide presentation by their head veterinarian, Dr. Bill Rapley. In February, one of their fellow keepers, Marilyn Cole, gave a talk and slide show on her adventures in Indonesia. Her talk was based on her excursion to Indonesia where she studied the orangutans in their native habitat. On 11 February, naturalist Arthur Strange gave a talk and slide show on "The Courtship of the American Alligator". They have been having book raffles and discussions. They are also working hard on the 1982 conference.

## Santa Barbara Chapter

The Santa Barbara Chapter of the AAZK was founded early this year and is pleased to announce the success of our meetings and the increasing enthusiasm of the many members.

The Executive Board includes:

President....Jeff Berglund  
Vice Pres....Fred Marion  
Secretary....Mike Jay  
Treasurer....Peter Grim

# News

## Central Florida Chapter

They held their February meeting at Busch Gardens. They had over 70 keepers from various zoos in the area. The keepers at Busch set up a day of touring the Park and animal habitats, plus behind the scenes at Busch. They had several speakers including: Gerald Lentz, Mgr. of Zoo Operations at Busch; Dr. John Olson, Zoo veterinarian; Zoo Education Coordinator, Dr. Judi Breuggeman; and a slide presentation of the keepers at Busch Gardens. Good Work, Central Florida Chapter!

# Conference.....83

## FINAL CALL FOR PAPERS

Papers are requested for the 1982 AAZK National Conference to be held Oct. 3-7 at Metro Toronto Zoo. The number of papers will be limited. Papers should be 20 minutes in length with an additional five minutes for questions. Please submit an outline or abstract by 15 July 1982. The registration fee for the conference will be reduced for those whose papers are accepted for presentation. A list of suggested topics may be found in the April 1982 Animal Keepers' Forum. Send papers to : Fran Turner, AAZK Conference Coordinator, Metro Toronto Zoo, Box 280, West Hill, Ontario M1E 4R5 Canada.



## CONFERENCE NOTES AND REMINDERS

- Mail takes extra time between the U.S. and Canada, so register early.
- The Canadian dollar fluctuates at about 20% below the value of the American dollar. Actual room prices in October may be slightly different than those presently quoted.
- All AAZK members planning to attend the Toronto Conference are asked to remember to bring an item for the auction. The auction is not only a lot of fun for everyone, but helps to offset the Conference expenses. So bring an animal-related item from your zoo and be represented at the Auction.
- There are a limited number of accommodations available with keepers on a first-come, first served basis. Please write as soon as possible if you are interested in staying with a keeper--include number in party, interests, whether vegetarian, non-smoker etc.

## 1982 AAZK CONFERENCE WORKSHOPS

The following is a preliminary list of workshops which we hope to present as part of the conference. We shall be happy to look at any suggestions for additional workshops from those interested in attending. Workshops tentatively scheduled are: Zoo Horticulture, Zoo Animal Nutrition, Reptiles and Amphibians at M.T.Z., Herbivores at M.T.Z., Carnivores at M.T.Z., Elephants at M.T.Z., Birds at M.T.Z., Fish at M.T.Z., Camel Training at M.T.Z., Tour of the Animal Health Unit, Women in Zoos, Keeper Education, Keeper Safety and Zoo Research.

CONFERENCE '83, continued

TENTATIVE AGENDA FOR 8TH NATIONAL AAZK CONFERENCE

Sunday, October 3

Board Meeting  
Registration  
Icebreaker

Wednesday, October 6

Papers  
Free afternoon--tour of Peters-  
borough Zoo, tours and workshops  
at the Metro Toronto Zoo  
Auction

Monday, October 4

Welcome and Introductions  
Tour of Metro Toronto Zoo  
Zoo Lunch  
Workshops  
Free Evening

Thursday, October 7

Papers  
Lunch  
General Membership Meeting  
Banquet at Casa Loma

Tuesday, October 5

Papers  
Lunch  
Papers  
Volleyball  
Dinner on the Town

HOSTED BY Metro Toronto Zoo AAZK Chapter  
at: The Chelsea Inn, 33 Gerrard St. W.,  
Toronto, Ontario Canada.

\*\*\* 1982 Conference Registration and Room  
Accommodation Forms may be found in the  
April 1982 (p.95) and May 1982 (p.108)  
issues of Animal Keeper's Forum.

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AAZPA Northeastern Regional Report

*By Oliver M. Claffey, Keeper  
Metro Toronto Zoo*

Metro Toronto Zoo hosted the AAZPA Northeastern Regional Conference in March and it was a most enjoyable experience. Workshops included Zoo Animal Nutrition, ISIS and In-House Records; there were sessions for Volunteer Guides/Docents and among the General Animal Management Sessions were several papers devoted to reptile and amphibian husbandry and bird propagation. Several keepers and AAZK members were featured as speakers. They include:

John Iaderosa "The new rare large African Mammal building at the Bronx Zoo"

James K. Gillespie "The off-exhibit breeding of birds at the Bronx Zoo"

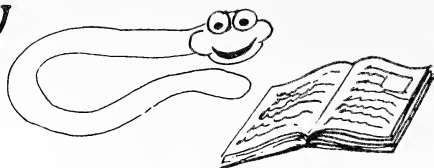
Duncan Bourne and Doug Chessel "Breeding the Black & White Casqued Hornbill at the Metro Toronto Zoo"

Oliver M. Claffey and Bob Johnson "Captive Reproduction of the Scheltopusik at Metro Toronto Zoo"

The 8th National Conference of AAZK at M.T.Z. was given a plug and many delegates took back our promotional posters and tentative schedule to their home zoos. The members of the AAZPA conference committee at M.T.Z. have been helpful in offering advice and suggestions to the AAZK committee regarding preparations for our conference.

The Northeastern AAZPA Regional was a good "dress rehearsal" for October!

# Book Review



## Wildlife of the Rivers

By William M. Amos

*Review by Curt Schroeder  
Calgary Zoo, Alberta, Canada*

William M. Amos, a freshwater biologist, has conducted extensive ecological studies of major rivers of the world and culminates his expertise in a well-written and amply illustrated book depicting diverse wildlife forms in selected major rivers of the world. This book is the sixth in a series of wildlife habitat volumes by the same publisher.

Aimed at a general audience, this book captivates the reader and leads him from continent to continent examining remarkable animal life forms who have special adaptations for survival in fast and slow moving water. From the Rhine of Europe with its mysterious European eel to the African Nile river with its crocodiles, hippopotamuses and flamingoes; from the Yenisei of central Siberia where the unusual Russian beluga of Lake Baikal can be found to the Murry-Darling river system of Australia where the Australian lungfish tries to survive in unpredictable water levels; from the Mississippi river where the ancient paddlefish is seen straining the water for plankton to the largest river in the world, the Amazon of South America, where the largest rodent (capybara) and the largest otter (Amazon giant otter) spend the day feeding along the river.

Many excellent color photographs of animals in action offer a welcome diversion from the task of reading. Many animals described and pictured are frequent zoo exhibit animals that are familiar to zookeepers. Perhaps the subtle message in this book is an appreciation of animal diversity in river systems that are subject to man's activity. An informative appendix, glossary and subject index give a reference-like quality to this book.

If there is any fault with the book it is the inadequate color map of the world which is a little confusing to use. Aside from this, I recommend Wildlife of the Rivers as a most suitable gift for zookeepers and those intrigued with freshwater biology.

Wildlife of the Rivers is 232 pages long, has 183 color photographs and 100 drawings, and one color map. It is published by Harry N. Abrams, 110 East 59th St., New York, NY 10022. Published in April 1981, it sells for \$18.95 (U.S.) and for \$24.95 in Canada/





## AAZK ACCESSORIES ORDER FORM



### AAZK ACCESSORIES AVAILABLE

**Decals:** The official AAZK decal is available through the Memphis Zoo Chapter. The decal is a black and white reproduction of the AAZK rhino logo, suitable for any smooth, hard surface, especially a car window. Cost is \$1.50 complete, prepaid. Make checks payable to the Memphis Chapter AAZK and send directly to Mike Maybry, Decal Project Coordinator, 1887 Crump Ave., Memphis, TN 38107.

**Pins and Charms:** Enameled three-quarter inch pins and charms with the official AAZK logo are now available. They are done in the same colors as the AAZK Patch and the charms are suitable for necklaces (you provide the chain). The price per pin or charm is \$3.50 which includes postage. To order send your name, complete mailing address, number of pins or charms desired to: AAZK National, 635 Gage Blvd., Topeka, KS 66606. Make check or money order payable to AAZK National.

**Buttons:** For a "Keepers Care" Button, send the coupon and 50¢ to: Larry Sammarco, Lincoln Park Zoo, 2200 N. Cannon Drive, Chicago, IL, 60614.

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Please send \_\_\_\_\_ button(s)  
for 50¢ each.

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## **Keeper's Alert**

### FIRST CALL FOR PAPERS

A First Call For Papers has been issued by the Coordinating Committee for the 5th Annual Captive Wildlife Symposium to be held at the Louisville Zoo on October 29-31, 1982.

Theme for this year's Symposium will be "The Importance of Zookeeping in the Breeding and Reproduction of Exotic Species". Persons interested in presenting a paper should send an outline/abstract to Steve Taylor, c/o Louisville Zoological Garden, 1100 Trevellian Way, Louisville, KY 40213.

We are indebted to the AAZPA Newsletter for allowing us to reprint portions of this section from their "Positions Available" listing. This is a monthly service to us, for you.

REPTILE KEEPER...responsible for entire collection. Prior experience required. Salary \$9,000-\$12,600, plus benefits. Call for details: Tim Krause, Assistant Director, Jacksonville Zoological Park, 8605 Zoo Road, Jacksonville, FL 32218. (904) 757-4463.

ANIMAL CARE SUPV./BIRD DEPT....responsible for collection and personnel under curator's supervision. Must plan and supervise breeding programs and prepare and maintain exhibits. Requires Bachelor's degree and two years' experience in zoological aviculture; supervisory experience preferred. Salary \$1,234-\$1,659/mo. By 15 July 1982 contact Bill Fiore, General Curator, Tulsa Zoo, 5701 E. 36th Street N., Tulsa, OK 74115. (918) 835-8472.

EDUCATION INSTR./GRAPHICS ASST...responsibilities include zoo/aquarium education programs (design & writing) and graphics production. Two to three years' experience and Bachelor's degree, plus graphics experience required. Salary \$16,00/yr. By 1 July 1982 contact Andy Grobins, Metropolitan Park Dist., 10 Idaho St., Tacoma, WA 98409.

PLANT ENGINEER...responsible for filtration and HVAC systems, plant and grounds maintenance. Must have minimum of five years' experience including three years' in supervisory capacity. Bachelor's Degree from accredited school desirable. Send detailed resume by 1 July 1982 to Carol Ruppert, National Aquarium in Baltimore, Pier 3, 501 E. Pratt St., Baltimore, MD 21202. No phone inquiries please. EOE.

SALES DIRECTOR...supervises and coordinates production and sales of exotic animal diets. Requires zoo animal nutrition background and ability to communicate with professional zoo personnel. Salary commensurate with ability and experience. Send resume to International Foods co., Inc., P.O. Box 29345, Lincoln, NE 68529.

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**JUNE IS NATIONAL ZOO AND AQUARIUM MONTH!!!**



# AAZK MEMBERSHIP APPLICATION

Name \_\_\_\_\_ Check here if renewal [ ]

Address \_\_\_\_\_

\_\_\_\_\_ \$20.00 Professional  
Full-time Keepers and  
International Members

\_\_\_\_\_ \$10.00 Associate  
Individuals not connected  
with an animal care facility

\_\_\_\_\_ \$15.00 Affiliate  
Other staff and volunteers

\_\_\_\_\_ \$50.00 Contributing  
Organizations and individuals

U.S. CURRENCY ONLY PLEASE

## Directory Information

Zoo \_\_\_\_\_ Work Area \_\_\_\_\_ Special Interests \_\_\_\_\_

Mail this application and check or money order, payable to American Association of Zoo Keepers, to: AAZK National Headquarters, Topeka Zoo, 635 Gage Blvd., Topeka, KS 66606.

Membership includes a subscription to the *Animal Keepers' Forum*. The membership card is good for free admission to many zoos and aquariums in the U.S. and Canada

## INFORMATION FOR CONTRIBUTORS



*Animal Keepers' Forum* publishes original papers and news items of interest to the Animal Keeping profession. Non-members are welcome to submit articles.

Articles should be typed or hand-printed. All illustrations, graphs and tables should be clearly marked, in final form, and should fit in a page size of no more than 6" x 10" (15 cm x 25½ cm.). Literature used should be cited in the text and in final bibliography. Avoid footnotes. Include scientific names.

Articles sent to *Animal Keepers' Forum* will be reviewed for publication. No commitment is made to the author, but an effort will be made to publish articles as soon as possible. Those longer than three pages may be separated into monthly installments at the discretion of the editorial staff. The editors reserve the right to edit material without consultation unless approval is requested in writing by the author. Materials submitted will not be returned unless accompanied by a stamped, self-addressed envelope.

Telephoned contributions on late-breaking news or last minute insertions are accepted. However, phone-in contributions of long articles will not be accepted. The phone number is (913) 272-5821.

DEADLINE FOR EACH EDITION IS THE 15TH OF THE PRECEDING MONTH

*Articles printed do not necessarily reflect the opinions of the Animal Keepers' Forum editorial staff or of the American Association of Zoo Keepers.*

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Topeka Zoological Park  
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Topeka, KS 66606**

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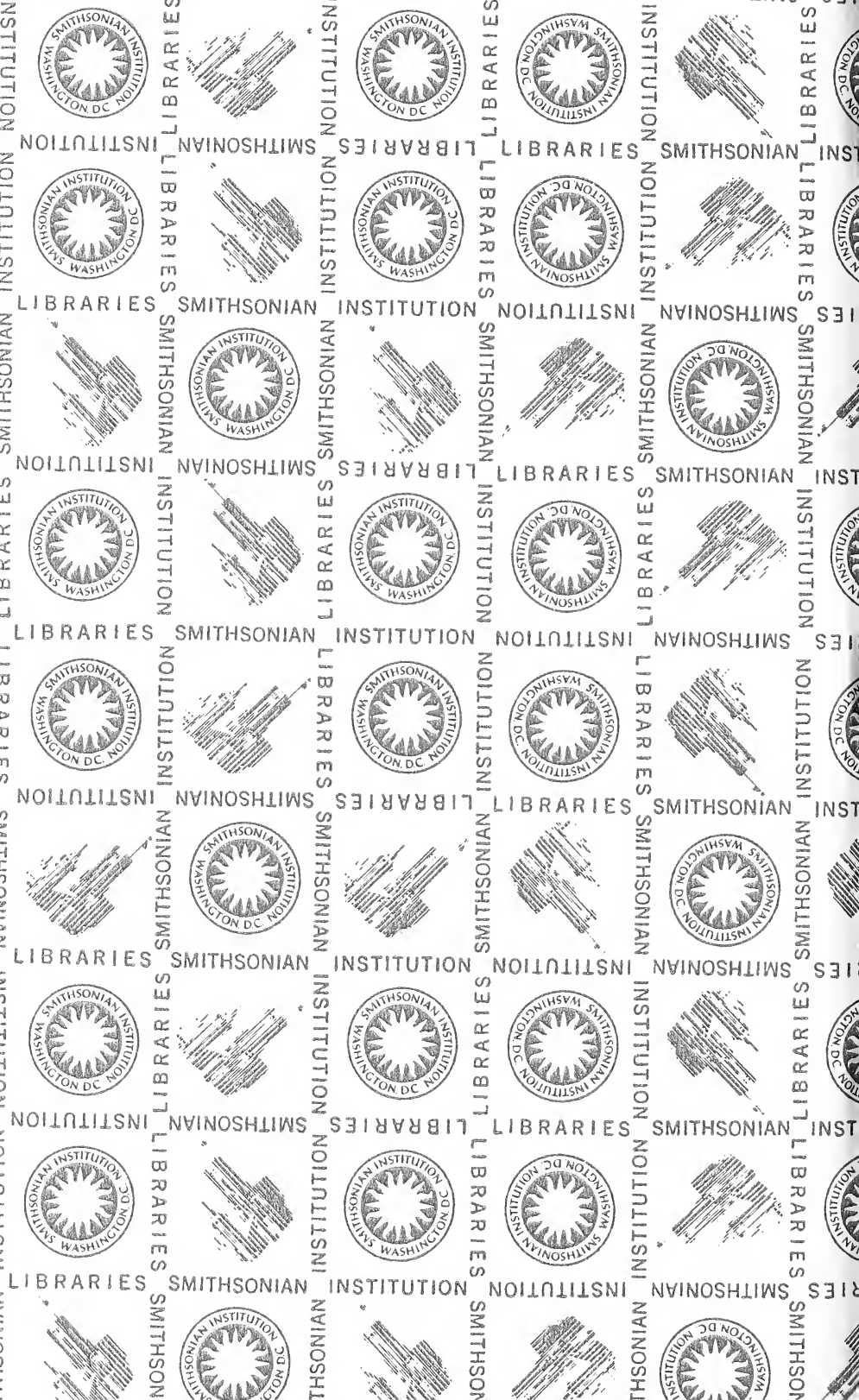
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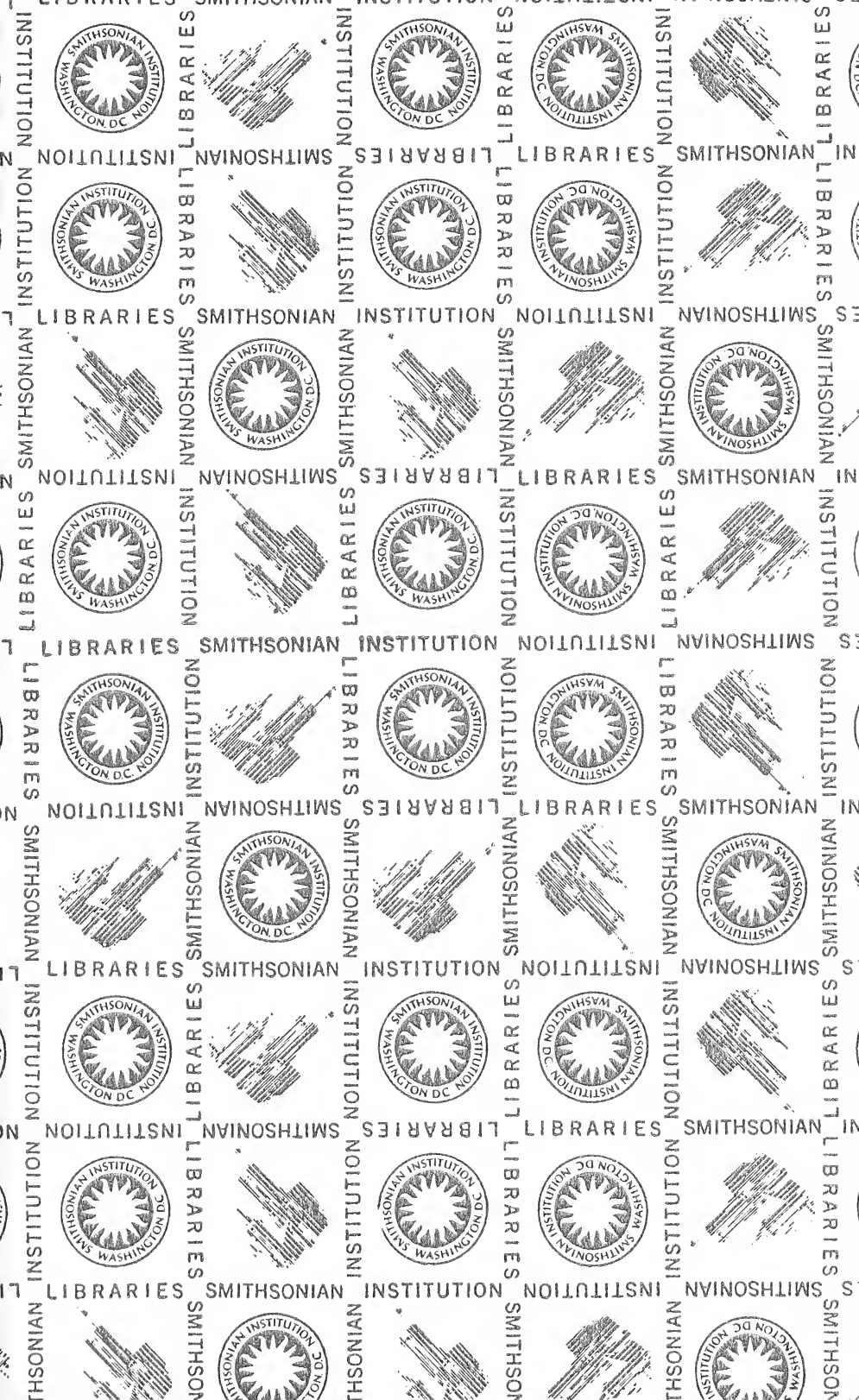












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